

page 1 of the **Codex**
Fejérváry-Mayer

a pocket-sized artistic masterpiece



Paul Schoenmakers

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June 2021

Time, space and religion in an artistically harmonious design.

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Preface

Over the past 200 years, thousands of books, reports, magazines, articles, and the like, have been published about ancient Mexico, part of the greater Mesoamerica cultural area. Some of this is about the scarce number of ancient native manuscripts that have miraculously been spared the blind destruction of the Spanish missionaries. After the conquest by the Spaniards, they made fierce attempts to convert the native population to Christianity, often by force. And a particularly successful method, also used elsewhere in world history, is the destruction of culture that begins with the burning of books and the (attempted) destruction of religion. Hundreds, if not thousands, of native books and manuscripts have gone up in flames. Fortunately, a small number managed to escape this sad fate. However, it took several centuries for the first of these ancient manuscripts to be discovered in Europe. This provided science with an unexpected opportunity to learn more about the ancient cultures of the Mesoamerican cultural region, most of which belongs to present-day Mexico.

When folded, some of these old manuscripts looked more or less like books. But actually these were long, harmonica-folded strips of native bark paper or fine deerskin, painted on both sides with strange signs, symbols, and figures. Although much of this has now been deciphered, much remains to be discovered. New meanings are constantly being discovered which makes it so fascinating and attractive to study these ancient manuscripts.



However, what has struck me in the many years that I have studied these windows to a very ancient civilization is that little attention is paid to the artistic qualities of the creators of these manuscripts. Although an ecologist by profession and as such also worked for a large municipality for years, my second (freelance) field is drawing and painting, especially the plant and animal world. And it is precisely from this second field that I also view and assess the drawings and paintings in these old manuscripts, whereby some manuscripts can be categorized as 'indigenous art' at a very high creative and artistic level.

It should be borne in mind that these ancient artistic writers had only very limited resources such as reed pens and a limited number of natural dyes. With this they had to convert a concept, theme, idea or message, of which no image existed, into a symbol or image that could be immediately recognized and understood by initiates at the time. It is really fascinating to see how much information these artists managed to put together in a logical context and in an often small image. You will hardly find images without any kind of information. True masters of their craft, building on and refining age-old traditions and knowledge, for which I have gained increasing admiration and deep respect over the many years of studying these manuscripts.

The old Mexican manuscripts represent a moment in time and the process of becoming. Just as our textbooks at school continue to develop and are regularly updated on the basis of new insights, so will undoubtedly have been the case with the old Mexican manuscripts. I think one of the most beautiful examples is the Codex Borgia, which can be regarded as a kind of manual for initiated priests. But this manuscript was certainly not conceived and painted that way in the currently known version. It cannot be otherwise than that a very long process of development was preceded to achieve this result. It is fascinating to philosophize and fantasize about what this beautiful manuscript would have looked like today if the invaded Spaniards had not put an abrupt and cruel end to this culture.

When you first see these pictorial manuscripts, the first reaction is to dismiss them as childlike scribbles. But nothing is less true. The thought "my goodness, where do I start" immediately flashes through your head. But rest assured, you will soon discover that a lot is ordered according to fixed, recurring patterns. It is only after you start working on it, take a closer look at the images and learn to recognize the patterns, that you come to the conclusion that they are often very beautiful scenes with a logical ordering pattern that have been very skillfully put together, drawn and painted. It is understandable that in our, now very spoiled, eyes it sometimes looks a bit childish and chaotic.

It is clear that these beautiful manuscripts, with sometimes more than 70 or even 100 pages, were not conceived and painted in one day. This has been a very gradual process over centuries. Following the line of history and logic, the first step must have been the discovery of being able to draw with a finger, piece of reed or bone splinter and the many possibilities but also impossibilities this has. Undoubtedly a fluke, but one with far-reaching consequences. Because people also discovered the dyes and a medium, such as animal skin, stone or paper, on which you can let your imagination run free and start portraying everything. Incidentally, many ancient cultural peoples around the world often used custom-cut reed or bird feathers in all thicknesses for drawing. Even today you can still buy reed pens and goose feathers. An important step was to discover natural solid or liquid dyes and how to make them in larger quantities. This was followed by the discovery of paper making and hides tanning to make them suitable for drawing and painting. By the way, it was not painted directly on the tanned skin, but first a white gesso layer, a kind of lime plaster or plaster, was applied that was sanded after drying, provided with a gloss layer and could only be painted afterwards. So before the first image was ever painted, a very long process had preceded it. With all these necessary basic materials, it was finally possible to experiment with actually painting these strips of pre-processed deer hide and native paper.

Only after one had mastered this painting and had discovered the possibilities and impossibilities, could one start making coherent paintings. After that, there must have been someone who had the brilliant idea of converting hitherto only information conveyed orally on matters such as religious, historical, astronomical or practical matters into painted images. This must have been such a "Eureka moment" that can change the history of a people. We do not know when this happened, because of course these are rapidly transient materials that are extremely rarely found in archeology. The oldest surviving manuscripts are the Mexico Maya Codex (previously known as Grolier Codex), the Codex Fejérváry-Mayer, and the Codex Laud. The latter two may have been painted by the same artist and dated to ca. 1240 CE (AD). The Mexico Maya Codex (Grolier Codex) is older and recently dated by Mexico's National Institute of History and Anthropology to 1021-1154 CE.

These old Mexican manuscripts are, as it were, snapshots of history, windows in time. The materials from which and with which these manuscripts were made were quite fragile and transient. It is predictable that given its undoubtedly very intensive use, the content was regularly changed over time based on new insights, facts and knowledge.

It cannot be otherwise than that new versions had to be made with some regularity. Kind of a continuous process that we don't know when it started. It is somewhat similar to the development of the bible, started with collecting and compiling the loose information known at that time and regularly adjusting it over time on the basis of new insights so that it grew into the many-page religious book such as that is now known.

What is striking is that when all surviving manuscripts from the pre-Spanish conquest period are placed side by side, there must have been an unambiguous basis for making the images. Just say the regulations, or toolbox, for the performing artists or writers that signs, symbols or figures had to meet as a minimum in order for them to be recognizable to everyone within that culture. This has also been established with the Egyptians (Principles of Egyptian Art, Heinrich Schäfer 1974) and Tibetans (Tibetan Book of Proportions, Newar and Tibetan artists 2014). For example, they had all kinds of basic patterns that images had to comply with, recorded in grids. Also when studying the old Mexican manuscripts you see the same basic principles again and again, but worked out by each people in their own style.

These exceptionally creative, meaningful and often high-quality artistic images, which at the same time contain a large amount of information about the daily experience, philosophy of life and religion, deserve greater recognition and appreciation as "indigenous art" in my opinion. Unfortunately, most of the information available about these ancient Mexican manuscripts is not easily accessible to the uninitiated and is often fragmentary. The often very high costs of gathering the information also form a significant barrier. This prompted me to make some of my studies related to iconography, operation and the creative and artistic qualities accessible to everyone in a more simple and understandable way.

A very special example of this concerns page 1 of the Codex Fejérváry-Mayer in which various of the philosophies, principles and customs of life that are important to ancient Mexican cultures have been merged into one scene, into a truly fantastic and harmonious whole. And all this on a rectangular piece of deer hide of about 17.5 x 16.5 cm. Can you imagine this? From my second freelance work as a draftsman/illustrator of in particular the plant and animal world with more than 50 years of experience, I can assure you that it is also an exceptional achievement in a creative and artistic sense. A true true pocket-sized masterpiece.



Figure 1.1 - World Museum, William Brown Street, Liverpool.

1 Introduction

When studying the small group of preserved ancient Mexican manuscripts from before the invasion and conquest by the Spaniards, you will inevitably come across one of the most famous pages of it. Eduard Seler called this "the most interesting, and in any case the most famous of the whole book." This is the first page of an old, harmonica-folded book known as the Codex Fejérváry-Mayer. This manuscript is one of only eighteen surviving indigenous books from ancient Mexico from before the invasion of the Spanish in 1519 CE. The Spaniards, especially the Spanish clergy, destroyed hundreds, if not thousands, of such indigenous sacred books because they thought, out of ignorance and prejudice, that this must be the work of the devil. Only a limited number of them survived this large-scale book burning and ended up somewhere in Europe in an unknown way and then forgotten there for a long time.

One such manuscript that has surfaced in Europe is the Codex Fejérváry-Mayer, whose recorded history in Europe begins in Hungary in 1851 when Franz Pulsky after the death of his cousin Gabriel Fejérváry inherited the antiquities collected by him. Pulsky was living in exile in London at that time and therefore had everything transferred to his residence there. Part of this collection was sold to Joseph Mayer, an antiquities collector in Liverpool, who wanted to display it in the local museum. This old Mexican manuscript (under code 12014 M) ended up in 1897 in what was then the Liverpool Free Public Museum, today's World Museum, where it has been carefully preserved ever since.

As was customary at the time, this old pre-Hispanic book was named after its two main owners, Gabriel Fejérváry and Joseph Mayer. How the highly regarded Fejérváry family obtained this manuscript is completely unknown. It is known that this family has always been a collector of antiquities.

Scientists have dated the age of the Codex Fejérváry-Mayer to c. 1200-1251 CE. So currently more than 760 years old, making it one of the oldest surviving indigenous manuscripts from ancient Mexico. It is made of strips of fine, very well-worked deer hide that have been carefully glued together by means of short overlaps. Together these glued strips have a length of almost 3.8 meters. Subsequently, the entire strip of skin was provided on both sides with a thin layer of white paste resembling plaster. After drying, a very thin gloss layer was applied on top. According to Burland (1971: 21), this gloss layer has virtually disappeared and is only present intact around the outer edges of the blades. Then the drawings and paintings were applied and the strip was very carefully folded like a harmonica into 23 sheets with dimensions of approximately 17.2 to 17.6 cm. high and 16.5 to 16.7 cm. wide. The two leaves at both ends, each on one side, form the cover. The original covers have disappeared and have been replaced by European-looking covers. 22 pages are painted on both the front and the back, so that this old manuscript has a total of 44 pages with images. Eduard Seler very aptly called these information-conveying paintings "picture writing", something we now do with the help of letters, sometimes using illustrations to clarify the text. In the further discussion I will therefore use the term picture writing.

The 18 surviving old Mexican manuscripts with picture writing are divided into three groups on the basis of style, coloring and the meaning known so far. These are the Maya, Mixtec and Aztec groups. Within the Aztec group another separate subgroup is distinguished: the pre-Hispanic Borgia group to which the codices Borgia, Borbonicus, Cospi, Porfirio Díaz Reverse, Vaticanus B, Aubin and Tonalamatl Aubin no.20, Laud and Fejérváry-Mayer belong.

All these ancient manuscripts or books come from different areas in what is now called Mexico. The peoples who made these books belonged to a culture that also extended beyond the present-day borders of Mexico into Belize, Guatemala and Honduras. The boundary of this ancient culture is called "Mesoamerica". However, because the mentioned books all come from areas within the current Mexican border, they will further be called the old Mexican books or manuscripts.

According to some authors, page 1 of the Codex Fejérváry-Mayer should reflect the cosmological vision of the creators of this scene. I certainly do not share this view because cosmology, as part of astronomy, is the science concerned with the origin, structure, and development of the universe. Cosmology serves to explain the universe on the basis of certain laws. The ancient Mexicans had absolutely no awareness or knowledge of a cosmos or universe and the place of planet earth in it. From the further discussion of this particularly beautiful scene on page 1 of the Codex Fejérváry-Mayer, it will become abundantly clear that there is in no way a vision of the universe and the place that the old Mexican world had in it. It is primarily a practical and primitive way of thinking of the ancient indigenous Mexicans about the relationship between space, time and religion as they saw it at the time.

In addition to the incredibly good performance of this fusion of space, time and religion, this image also stands out artistically. Reason to draw attention to the artistic qualities of this very special page. Since the explanatory notes published by Eduard Seler in 1901 still apply to a large extent, they will serve as the guiding principle. Some new insights will also be brought forward. To me, this publication is at the same time a tribute to the pioneer and grandmaster Eduard Seler who laid an extremely important foundation with his pioneering studies of the ancient Mexican manuscripts.

2 Artistic qualities

In Europe, the Codex Fejérváry-Mayer was first brought to attention by Edward King, Lord Kingsborough. He published this manuscript in 1830 and 1831 in his 7-volume 'Antiquities of Mexico' with a copy painted by the Italian artist Agostino Aglio and published as a facsimile. Later 2 volumes were added to this.

The Codex Fejérváry-Mayer was placed in 1901 by the founder of Mesoamerican science, Dr. Eduard Seler, on the basis of many similarities, in a group of 7 pre-Hispanic manuscripts which he called the 'Borgia group'. To date, nothing has changed in this regard.

It is noteworthy that the available literature mentions only in very vague terms something about the colors and the somewhat stiff and formal execution of the drawings and paintings in the manuscripts, but nothing about their artistic qualities. While it was precisely those artistic qualities that enabled the creator to give the codex its current form. Hence, prior to discussing the content of page 1 of the Codex Fejérváry-Mayer, I would first like to pay attention to the artistic qualities.

2.1 Image material used

For the study and analysis of page 1 of the Codex Fejérváry-Mayer, use was mainly made of material from three image sources. These are:

- the Lord Kingsborough facsimile from 1831;
- the Loubat photographic facsimile from 1901;
- the Graz photographic facsimile from 1971.

The 7-volume Antiquities of Mexico series, created thanks to Lord Kingsborough, contains a facsimile of the Codex Fejérváry-Mayer in part III. At that time this codex was still in the possession of M. de Fejérváry living in Pess in Hungary. The facsimile is a commissioned and painted version of the Codex Fejérváry-Mayer by the Italian painter Agostino Aglio, commissioned by Lord Kingsborough.

Photo-chromatography was used for the Loubat facsimile. In this technique from the end of the 19th century, filters were used to record the colors individually on a sensitive plate. The trick was to then place the different plates with separate colors on top of each other again as accurately as possible and to make a composite print of them. A requirement was that the layers were placed on top of each other again in the correct order, which sometimes went wrong here and there, as can be seen in various images in the Codex Borgia, among others.

The Graz facsimile (Burland, 1971) is the most recent photographic edition and provides quite a detailed picture of this manuscript. Although the Codex Fejérváry-Mayer is one of the oldest manuscripts, it is striking that it has remarkably little damage compared to most other surviving manuscripts.

For this study I have compared the three sources mentioned in order to discover the similarities and the differences (figure 2.1). For making the new drawings according to the trace method I used the Loubat edition as a base. For the coloring, I was mainly guided by the Graz edition and the knowledge that the different colors have faded to a greater or lesser extent over time.

2.2 Drawing and painting qualities

The Codex Fejérváry-Mayer as a manuscript has been somewhat underexposed over time. Attention was mainly focused on the larger cousin of this family, the Codex Borgia, the crown jewel of this group.

Yet the first page of the Codex Fejérváry-Mayer is one of the most famous pages of the Borgia group manuscripts. In visual and spatial terms, it is an example of creativity and craftsmanship that is found nowhere else in the other ancient Mexican manuscripts. As Burland (1971: 21) mentions in the explanation to this manuscript from the Graz family, the images are of an artistically exceptional quality. As a draftsman and illustrator with over 50 years of experience, I can only confirm this.

Clean black lines of unprecedented precision, exceptionally even coloring within the lines, straight lines that are also really straight, hatchings as if they were made with the help of a ruler and circles that are almost perfectly round. It is also striking that the lines connect seamlessly everywhere, something that is by no means the case everywhere in the other old Mexican manuscripts. The spatial structure also has a remarkably high degree of symmetry. And all this on an area of approximately 17.4 by 16.5 centimeters.

Donald Robertson (1959: 9) has made an extensive study of the artistic qualities and provenance of the ancient Mexican manuscripts. But he does not go into the artistic qualities of the artist who created the Codex Fejérváry-Mayer. The downside of this sleek, 2-dimensional technique is that the drawings seem somewhat stiff and formal. However, we should not forget that this picture writing was solely intended to be purely functional and not an artistic creation. Every initiate at that time had to be able to understand what was meant according to the then applicable rules.

Compared with all the other pre-Hispanic manuscripts that have been preserved, this Codex Fejérváry-Mayer differs in drawing and painting from the other members of the Borgia group who usually have a much looser, playful and sometimes somewhat childlike drawing and painting style. The images in this Codex have an almost technical, sleekly stylized appearance with almost perfect lines. It is partly thanks to these artistic qualities that its creator was able to represent the essences of the prevailing idea of space, time and religion in an integral way. An exceptionally good performance.

The same tight drawing technique of the Codex Fejérváry-Mayer can also be found in the Codex Laud. It is therefore believed that both manuscripts were created by the same artist. This assumption is reinforced iconographically by the almost identically drawn day signs on pages 33-37 of the Codex Fejérváry-Mayer and pages 9-16 of the Codex Laud.



Kingsborough facsimile



Loubat facsimile



Graz facsimile

Figure 2.1 - Example of the image at the bottom right of page 4 of the Codex Fejérváry-Mayer as it appears in the Kingsborough, Loubat and Graz editions. In the facsimiles of both Loubat and Graz, the straight, uninterrupted drawings immediately stand out, which indicates a very experienced artist with a particularly steady hand of drawing. In this example, the problem of the individual color layers from the photo-chromatography in the Loubat version is also visible because the plate with the color red has shifted slightly to the right, causing the color of the steps to fall outside the lines. This is not the case in the original as can be seen in the photographic Graz facsimile on the right. Here the black lines all connect neatly and the colors always fall within the drawn lines.

The first to describe in detail the special first page of the Codex Fejérváry-Mayer in 1901-1902 was Dr. Eduard Seler, a pioneer who laid a very broad and solid foundation for the study of ancient Mexican manuscripts. I have used his description as a basis for the discussion of page 1 of the Codex Fejérváry-Mayer and supplemented where necessary with new insights that have been brought forward since then. It is remarkable that this special page has since become the best-known and most reproduced page from the old Mexican picture writings, but it is discussed in detail by only a few authors, using the texts of Eduard Seler for the most part.

In addition to the spatial pattern and structure, the iconography and the meaning, this fascinating page 1 also has a number of very special and striking characteristics from a drawing-technical point of view. Except in the Codex Laud, these features do not appear in any other old Mexican manuscript.

2.3 Spatial pattern as a basis

Already at the first glance at the scene on page 1 (figure 2.2) it becomes clear that this is a particularly symmetrical and harmonious pattern in which the number 4 plays a striking role. It should be borne in mind that although this pattern was drawn on page 1 of this manuscript around 1240 CE, the underlying philosophy, knowledge and meaning is already several thousand years older. This can be deduced from the basic elements used in this image such as the 260-day count, the cardinal directions, the year bearers, and the nine deities of the night.

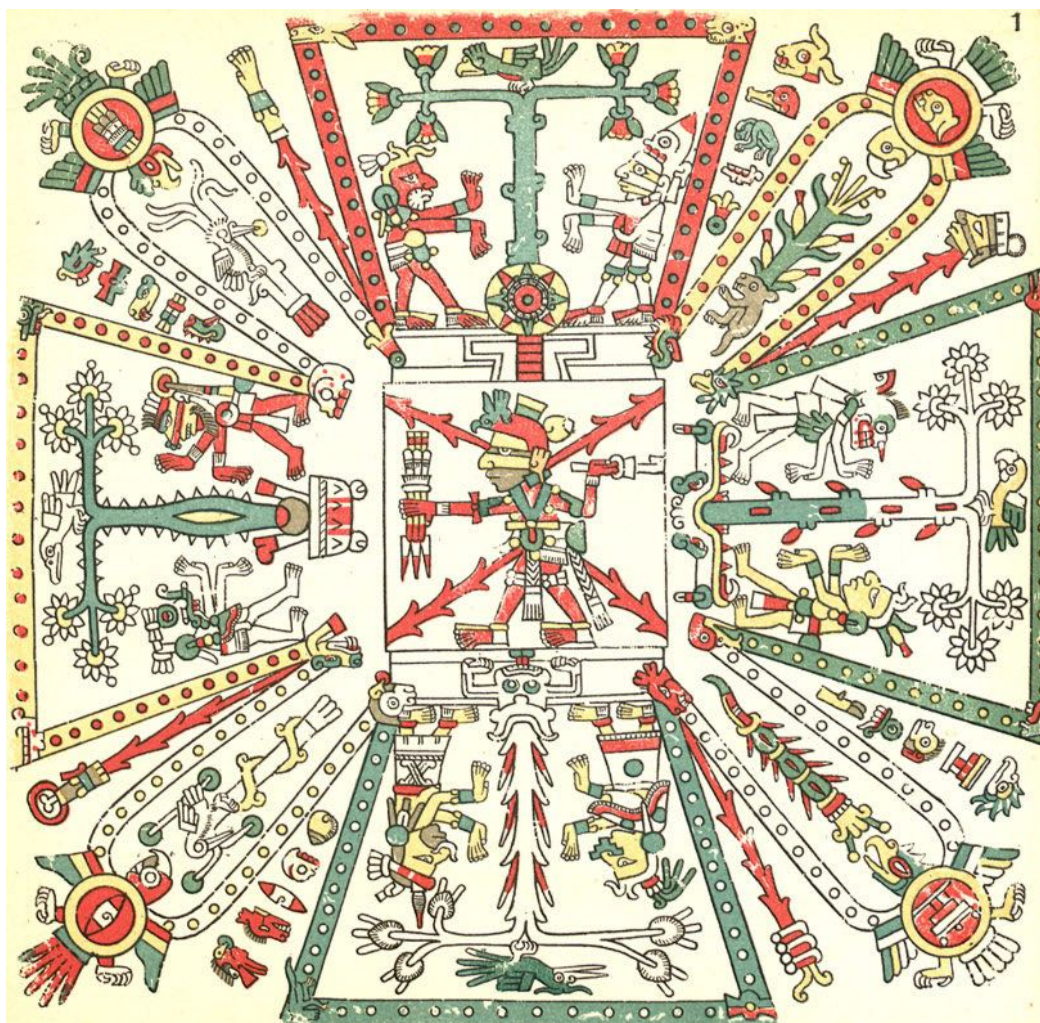


Figure 2.2 - Page 1 of the Codex Fejérváry-Mayer from the 1901 facsimile edition of Duc de Loubat.

Elements and themes that already appear in the oldest inscriptions and date from the period of the (pre-)Olmecs, the oldest civilization in ancient Mexico and Guatemala. I will return to this in the discussion of these structures and elements.

This does not alter the fact that, from an artistic point of view in particular, it has been an extremely fine achievement to harmoniously bring together these many centuries-old themes about time, space and religion in one, all-encompassing and coherent, image on such a small surface (approx. 17.4 cm wide and approx. 16.5 cm high). This requires an unimaginable degree of knowledge of religion and calendar system, but also a very high degree of drawing skills, creativity and especially spatial insight. Many pages of text are required to explain in written language the information contained in this small image, as will become apparent from this discussion. You can't help but have a lot of admiration for the inventor(s) and creator(s) of this image. We will never know whether the writer and inventor of the spatial structure and the underlying philosophy, coherence and meaning were the same.

For the substantive discussion I have used page 1 of the Loubat edition from 1901 as a basis (figure 2.2). Although the colors are not displayed completely correctly, it is a clear display that can be used as a underlay without many problems. The more accurate photographic Graz facsimile from 1971 served as a photographic comparison.

It is abundantly clear that it is visually a particularly symmetrical and harmonious composition. Because I worked for more than 12 years as a technical draftsman, illustrator and designer at the start of my career, I was curious from my own professional knowledge whether and to what extent this visual symmetry also corresponded with the technical symmetry as we apply it today. To gain more insight into this, with the Graz facsimile from 1971 as a reference and the Loubat facsimile from 1901 as a support, I have individually redrawn and digitized the various parts of the image on page 1 in the professional photo editing program Affinity Photo 1.9. 1 in which, among other things, individual layers can be used and also has very accurate measuring functions. During this very time-consuming process, I came to some surprising discoveries that further confirm that the creator of this image must have been a very experienced grandmaster of drawing and painting.

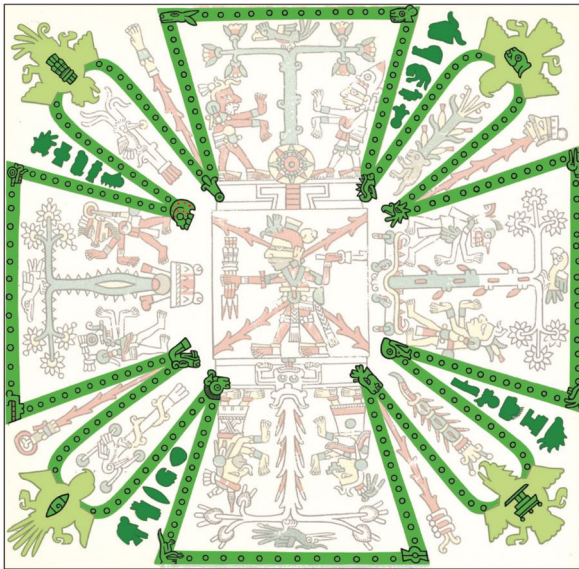
As already mentioned, the first thing that strikes you in the image on page 1 is the quadruple that keeps returning such as 4 trapezoids, 4 arches, 4 trees, 4 plants, 4 birds, 4 pairs of deities, 4 blood streams with 4 body parts of the deity Tezcatlipoca, 4 offerings, 4 year bearers and 4 groups of 5 day signs.

In the old Mexican manuscripts, it is common for the core of the narrative to be depicted centrally and also usually larger in size than the images around it. This is also the case on page 1 of the Codex Fejérváry-Mayer with the large drawn god of fire (Xiuhtecuhtli), the lord of the fire, the heat, the turquoise, the day and time. This is placed in the middle of the scene and also in a central, almost square, frame to emphasize this again.

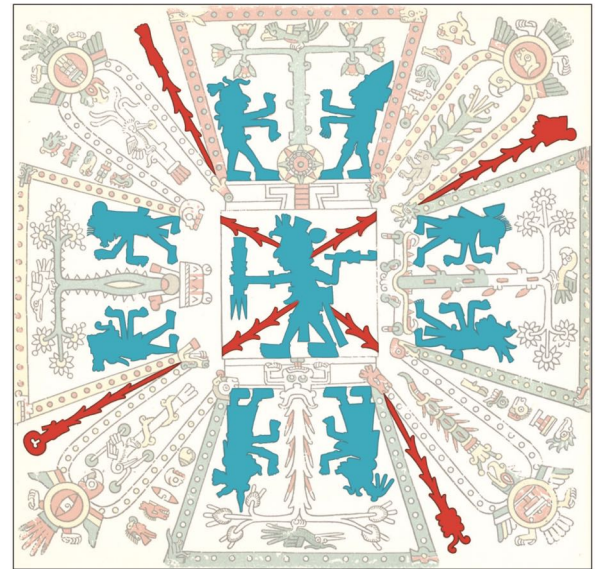
Around this centrally placed god of fire, the various themes can be discerned that played a dominant role in the life of the ancient Mexican peoples and had everything to do with time, space and religion. Usually these themes appear individually in pre-Hispanic Mexican manuscripts. Here, however, they are cleverly woven together into a whole. These different themes are named and visualized below, so that the specific location within the scene becomes clear.

The themes that can be distinguished are (figure 2.3):

1. the ordering of time (chapter 3);
2. deities and bloodstreams (chapter 4);
3. trees, birds and offerings (chapter 5);
4. the directions (chapter 6)
5. the plants (chapter 7).



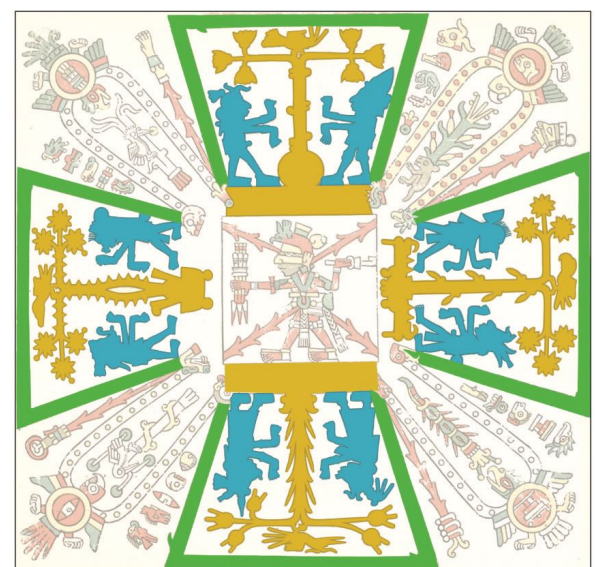
Theme 1 - the ordering of time



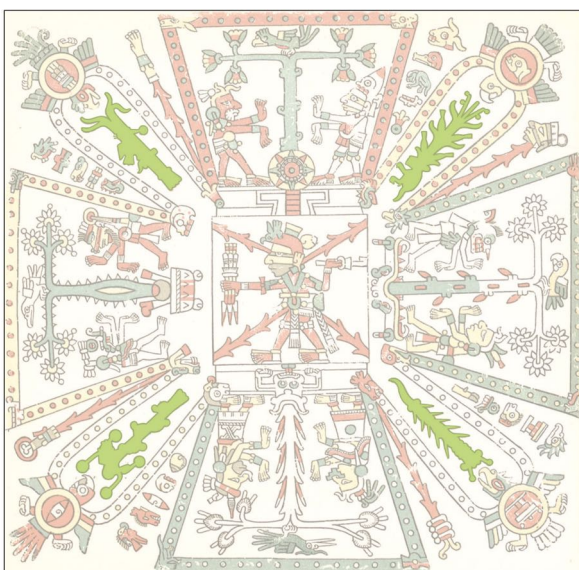
Theme 2 - deities and blood streams



Theme 3 - trees, birds and sacrifices



Theme 4 - the directions



Theme 5 - the plants

Figure 2.3 - The five different themes that make up the image on page 1 of the Codex Fejérváry-Mayer.

These themes are discussed further in the chapters 3, 4, 5, 6 and 7. But first I will discuss the applied drawing techniques in combination with the clearly present visual symmetry. An interesting question here is to what extent this visual symmetry corresponds to the technical symmetry.

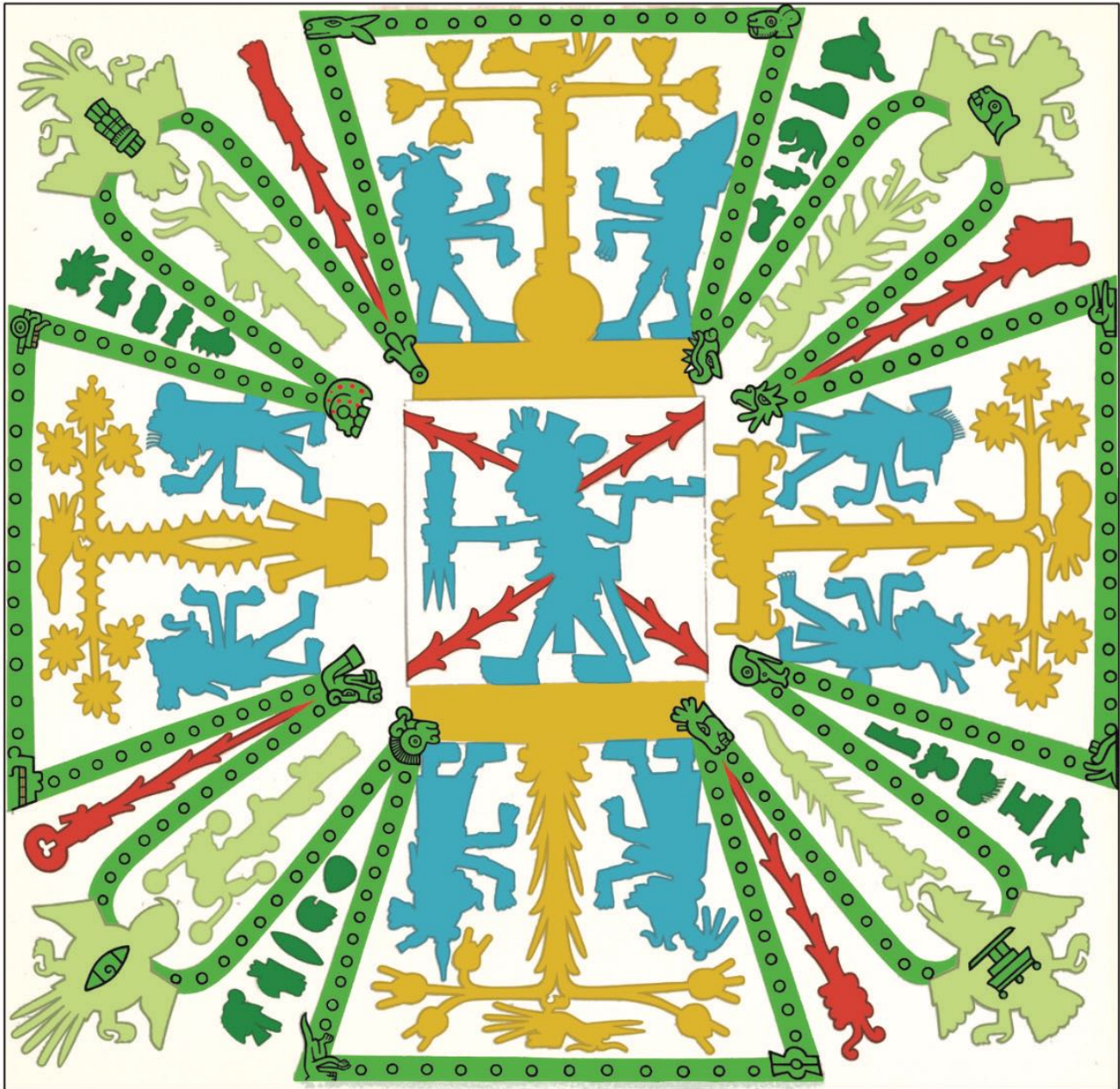


Figure 2.4 - Integrated view of the individual themes.

2.4 Symmetry

A very striking feature of page 1 of the Codex Fejérváry-Mayer is the way in which the five themes are visually interwoven as a symmetrical whole in a harmonious way (figure 2.4). The first step was therefore to gain insight into the structure of this visual symmetry in relation to the drawing-technical symmetry of the page on which it was drawn and painted. For this I have taken the surrounding framework of the 260-day count as a framework and basis because the other themes take place within or in between and are therefore actually fitted into and attuned to this framework.

This frame of the 260-day count primarily determines the visual symmetry on this page and consists of the 4 trapezoids, the 4 corner arches with birds and shields and the central frame.

This frame has been digitized (figure 2.5) in a separate layer over the almost transparent page 1 of the Loubat 1901 facsimile. In the circles (or shields) on the backs of the birds in the corner arches are the technical horizontal and vertical center lines.

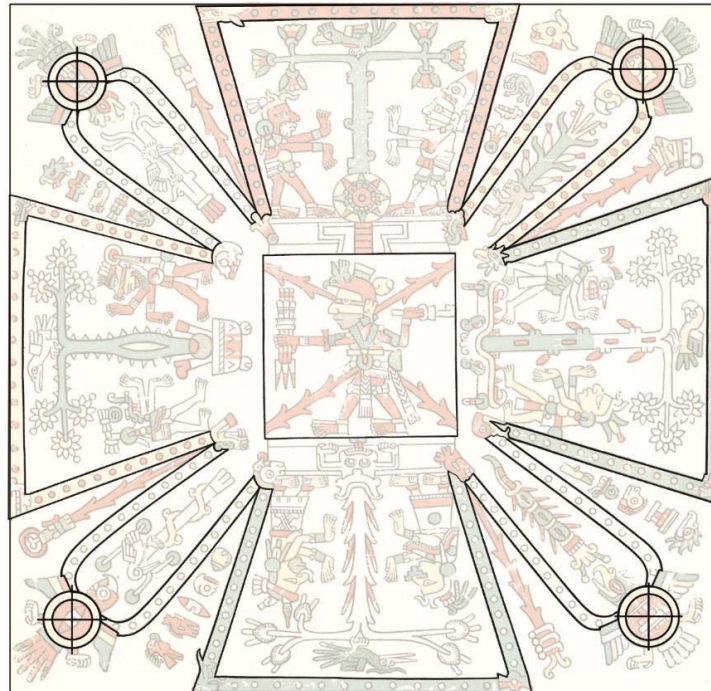


Figure 2.5 - Layout of the drawn symmetrical frame of the 260-day count with center lines in the 4 circles.

Subsequently, the frame of the physical outer edge of page 1 has been applied to a next layer, together with the two diagonals. From the intersection of these diagonals, the vertical and horizontal axes were then drawn that divide the page exactly in two in height and width. So the diagonals and axes of the physical page itself (figure 2.6). Now we have the technical centre.

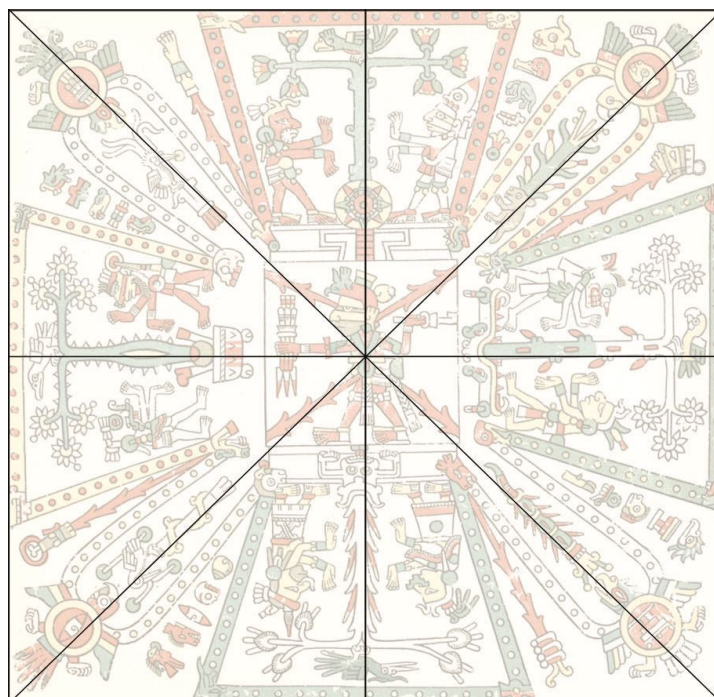


Figure 2.6 - Frame physical outer edge page 1 with the technical diagonals and axes made therein.

The next step was to use red dotted lines to create the visual diagonals across the centers of the center lines of the double circles on the birds at the ends of the corner arcs as shown in figure 2.7.

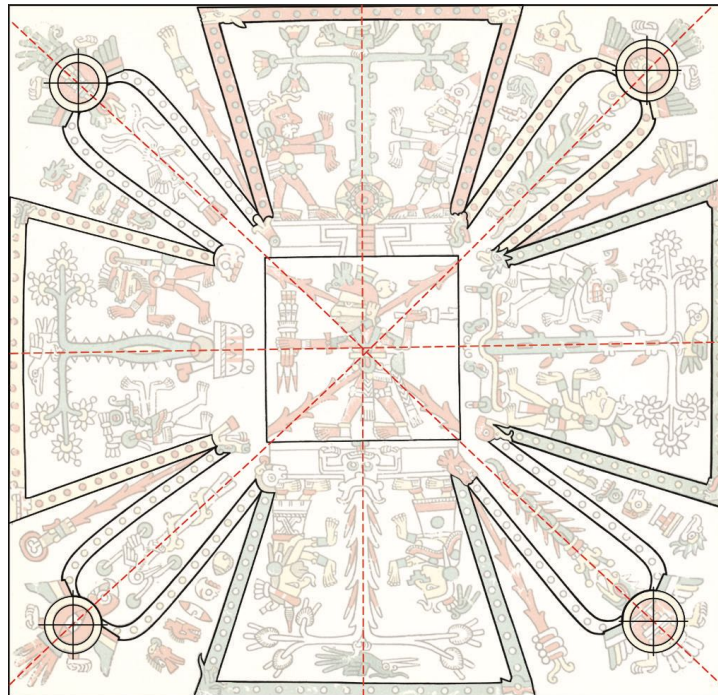


Figure 2.7 - Diagonals and axes based on the centerlines of the original double circles on the birds in the corners defining the visual symmetry of the scene.

Then the layers with the technical diagonals and axes of the physical sheet of figure 2.6 were placed on top of this, so that the differences between the two become visible in figure 2.8.

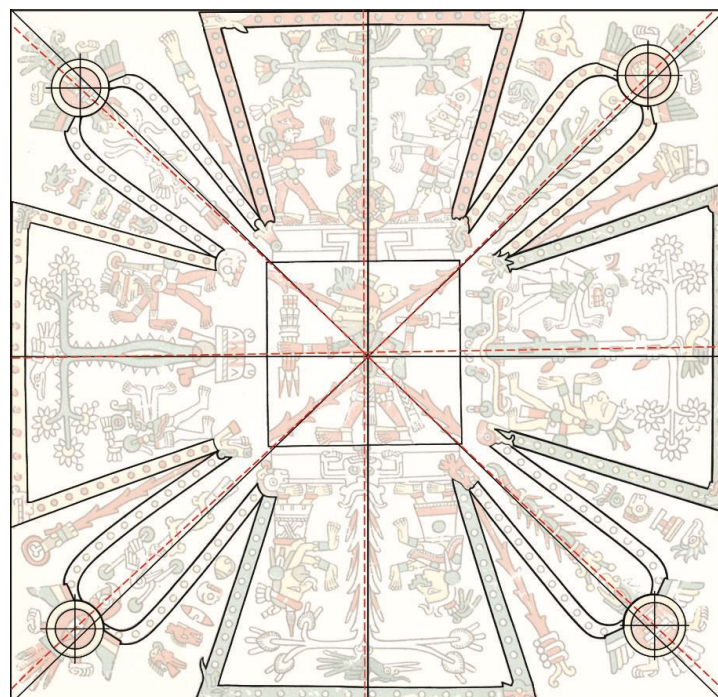


Figure 2.8 - Bringing together the visual symmetry of the physical sheet with the technical symmetry of the scene.

When we enlarge figure 2.8, the differences become more visible and show that they are very limited (figure 2.9). The visual diagonal 1 from bottom left to top right is exactly parallel to the technical diagonal at a distance of 1.8 mm. The visual diagonal 2 from bottom right to top left deviates by only 0.5° from the technical diagonal. The vertical centerline (axis) is parallel to the technical centerline at only 1.1 mm while the horizontal visual centerline is slightly sloped, at an angle of only 0.8° , to the technical horizontal centerline (axis).

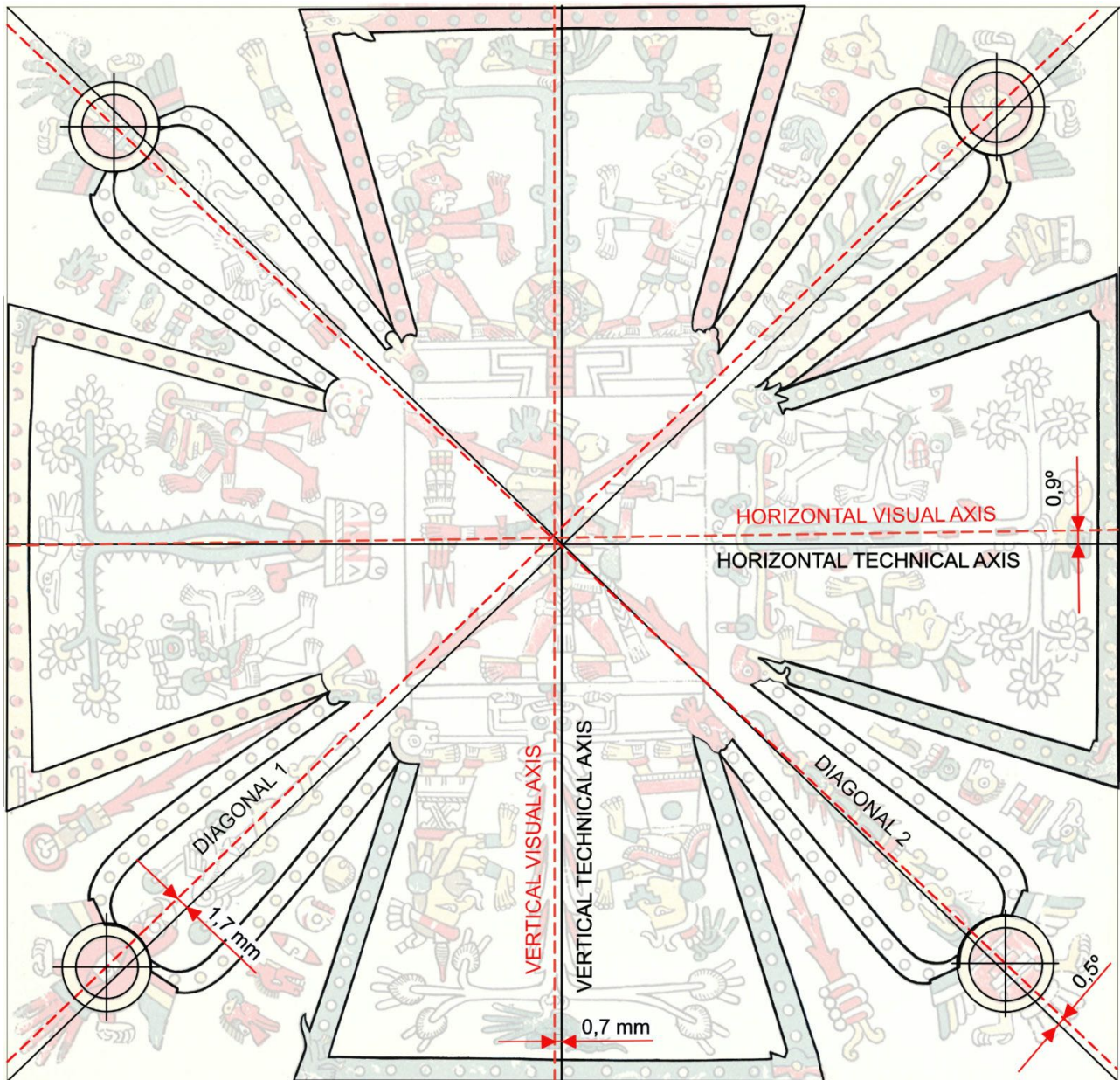


Figure 2.9 - Differences in millimeters and degrees between the drawn and the technical axes and diagonals when the images 2.5, 2.6 and 2.7 are superimposed.

The Loubat edition used in this study may differ slightly in dimensions from the original, so that the differences may be slightly smaller or larger. However, the accuracy in the applied symmetry drawn on sheet 1 is and remains impressive.

A clever example of craftsmanship from which it can be deduced that the creator of this scene was very well aware of the visual power of symmetrical design. The creator must also have been well aware that these five themes lend themselves perfectly to such a symmetrical structure. And almost as if it were self-evident, the different themes fold harmoniously in and around this symmetrical basic structure.

2.5 Circles

What also struck me as an experienced draftsman were the four almost perfect double circles in the corners, resting on the birds at the ends of the corner arches. I was therefore very curious to what extent these circles were really round. The circle as a shape was by no means unknown in the ancient pre-Hispanic manuscripts because it was very often used for coats of arms, earrings, insignia, jewelry, but also as the round colored discs indicating the number of days.

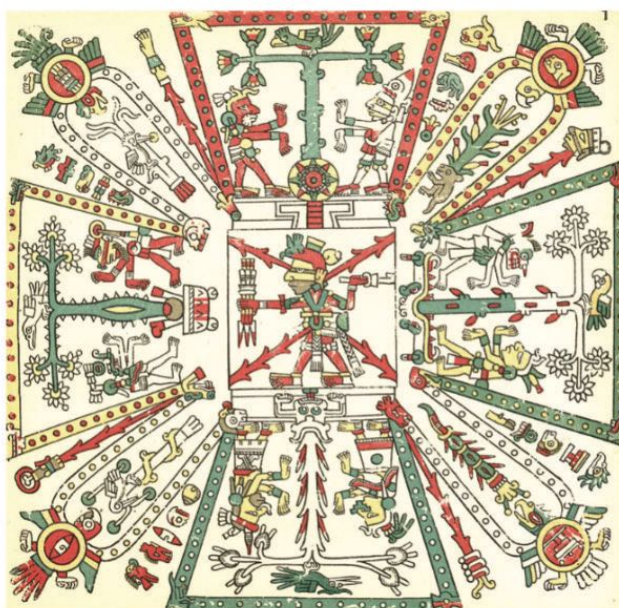
With the exception of the Codex Laud (probably from the same creator) and the Codex Vienna (e.g. page 26, which comes close) I have never encountered such, almost perfectly round, double circular shapes. Even the point of the connection of the line is not visible (see figure 2.10). This indicates that the circles have been drawn in one smooth motion with the beginning and end of the line exactly aligned. Try to imitate that.

You get even more appreciation for this piece of craftsmanship when you see that this master has repeated this four times with almost exactly equal double circles (figure 2.10). You would be tempted to think that the creator used a mould for this.

day sign reed



day sign rabbit



day sign flint



day sign house

Figure 2.10 - The four shields on the backs of the birds in the corners of the image, each shield consisting of a double circle with a day mark (annual bearer) inside.

To get an idea of the accuracy, I have placed these 4 double circles with the corresponding day signs (also the 4 year bearers) from sheet 1 of the Graz edition 1971 (more photographically accurate) next to sheet 1 of the Loubat edition 1902 (figure 2.10). Then I drew technical circles with their axes with the digital drawing tools of Affinity Photo and placed them on the original circles from page 1. It is astonishing to see that the original handcrafted circles of the two right-hand day signs rabbit and house, in particular, are very similar to the modern technical circles (figure 2.11).

From a technical point of view, the inner and outer circles of the day signs reed and flint are approximately 0.6 to 1.1 mm smaller than those of the day signs rabbit and house, which is also clearly visible. The difference in size between the outer circles of reed and flint is between 0.5 and 0.7 mm, between the inner circles this is 0.4 to 0.5 mm. Amazingly, both the inner and outer circles of all four day signs are exactly at the intersection of the axes, as if drawn with a pair of compasses.

The inner and outer circles of the day signs rabbit and house at the right are almost the same size with a difference in the outer circles of 0.1 to 0.5 mm and of the inner circles of 0.2 to 0.5 mm and without the naked eye visible flaws in the lines. The start and end points of all circles also connect seamlessly. Also, the lines are all of the same line thickness (figure 2.11). Try to imitate that. From experience I know that drawing such circles freehand with modern tools is already a difficult task, let alone without them as it was more than 750 years ago.

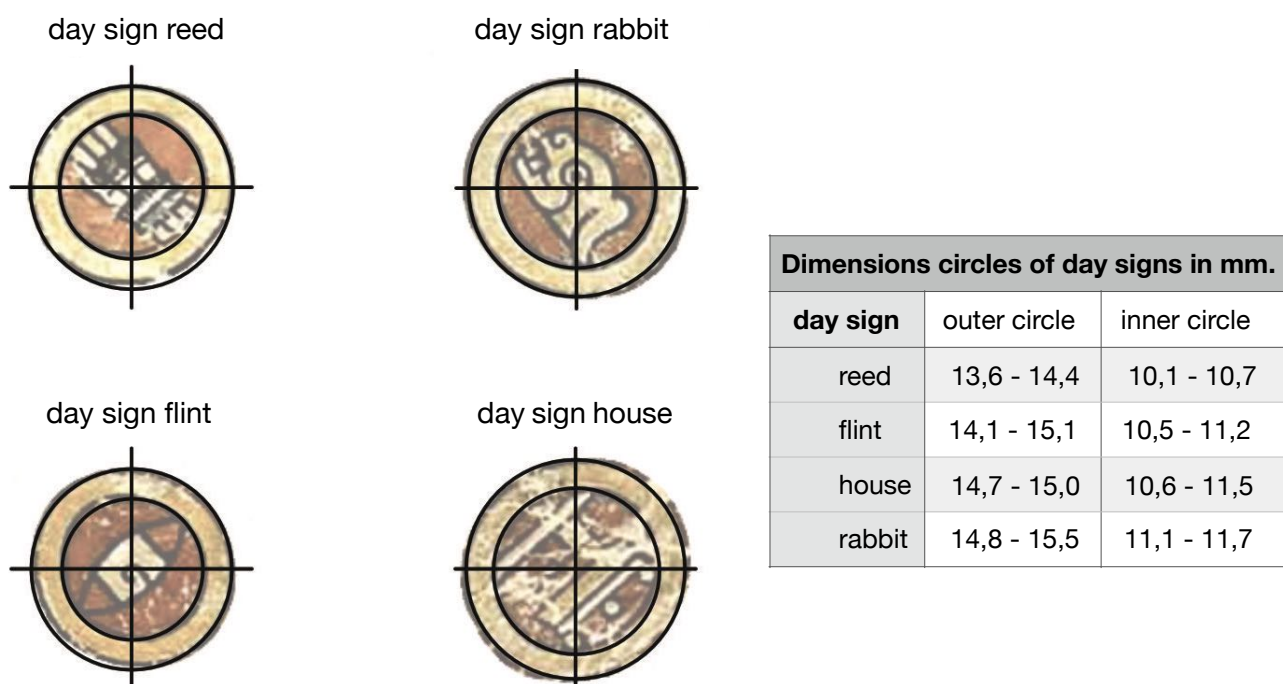


Figure 2.11 - The 4 shields with 4 different day signs and also year bearers in relation to the black modern and perfect circles. The minor differences are remarkable.

A simple way that I have used myself is to use a flat round object, for example a coin, saucer, plate, bowl or dish, where a nice round line can be drawn along the circumference. But that becomes a lot more difficult when you work with an inner and outer circle that is symmetrical to each other. Moreover, using such a tool, you would expect that all four circles would be the same size, which is not the case, however. Usually such accurate, double, symmetrically placed circles are drawn with a ruler and a pair of compasses. But of course they did not exist in ancient Mexico over 750 years ago. It is therefore a mystery how an artist at that time managed to draw such near-perfect circles without any noticeable hitches in the lines. The way in which this perfection was obtained will always remain a mystery.

Seen in this light, it is noteworthy that the sacrificed rubber ball in the left trapezium and the solar disk in the upper trapezium do not have this perfect round circular shape (see figure 2.12). If anyone knows an explanation for this please let me know

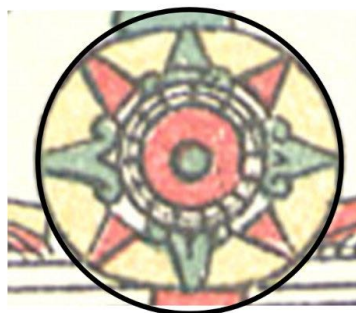
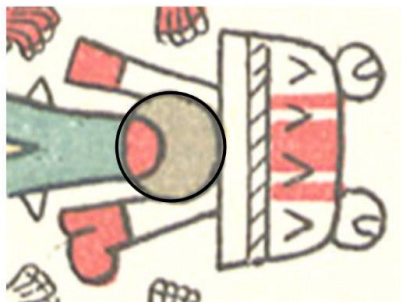


Figure 2.12 - Details of circles as present on the same page 1 of the Loubat facsimile over which technically perfect black circles have been drawn for comparison. It is clear that these circles are much less accurate than the 4 double circles discussed above in the corners on the birds.

2.6 Lines

As mentioned earlier, the lines of the figures are drawn very tightly, often without any hitches or deviations. Even the straight lines of, for example, the central frame and the four trapezoids are incredibly clean and straight and with a remarkably even line width. As if they were drawn along a ruler (see cover page). Incidentally, this can also be found on the other leaves of this manuscript, as well as on the pages of the Codex Laud, further confirmation that both manuscripts were most likely drawn and painted by the same master. In the other indigenous pre-Hispanic manuscripts, the point of connection of two lines can usually be seen. The lines are often looser, more playful and therefore less tight. It rarely happens that two line segments connect invisibly with each other. Figures 2.13 and 2.14 show temples that clearly express the difference between the clean lines in the Codex Fejérváry-Mayer (figure 2.13) and the loose, playful lines in, for example, the Codex Borgia (figure 2.14) and other pre-Hispanic manuscripts.

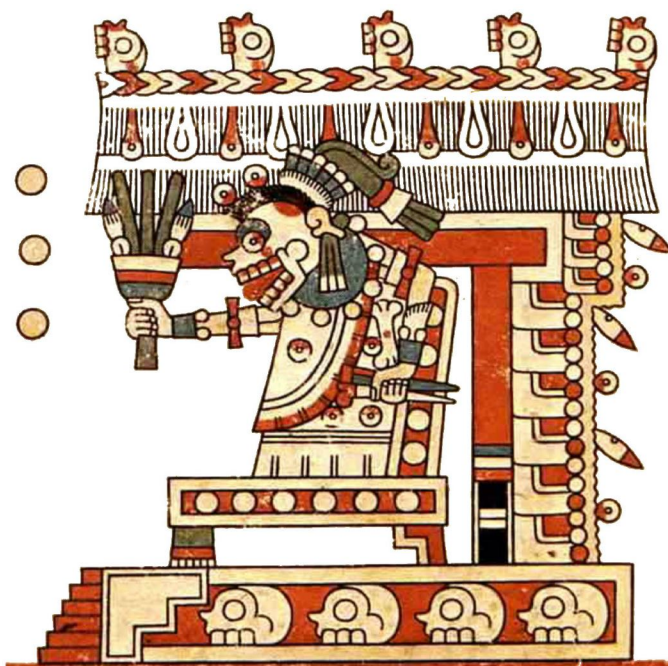


Figure 2.13 - Temple on page 32 of the Codex Fejérváry-Mayer (Graz edition) with strong, clean lines.



Figure 2.14 - Temple on page 18 of the Codex Borgia (Graz edition) with loose, frayed, irregular lines.

In figure 2.13, the smooth, clean lines of the drawing quickly stand out. As if the lines were drawn along a ruler. The vertical shading of the thatched roof of the temple is very even, especially when we compare this with the very loose and irregular shading of the temple roof in figure 2.14. What is also striking in figure 2.13 is the strong uniformity in, for example, the 5 skulls on the roof of the temple and the 4 skulls in the base. This has been drawn with such precision that it almost looks like a mould or stamp has been used for this. Also notice the difference in the steps of the stair of the temples. Although this is only an example, you do see this difference again and again in comparisons between the Codex Fejérváry-Mayer and the other pre-Hispanic manuscripts.

This indicates that the Codex Fejérváry-Mayer is the work of a very experienced master who made the drawings very carefully, with steady hand, high precision and in peace. The Codex Borgia gives more the image of the work of a draftsman and writer with a less steady hand, giving the lines a more irregular and therefore apparently careless character.

Another special aspect is the fairly accurate shading that has been applied. Fine examples of this can be found on pages 6, 7 and 30 of the Codex Fejérváry-Mayer (see example in figure 2.15). Thin, regular, connecting everywhere, very tight, almost parallel lines that require a lot of experience, a special steady hand and a fine drawing instrument. In the Codex Borgia, for example, the lines are often more irregular, somewhat frayed and less parallel (see example in figure 2.16).



Figure 2.15 - Example of regular shading on page 7 of the Codex Fejérváry-Mayer (Graz edition).



Figure 2.16 - Example of irregular shading on page 45 of the Codex Borgia (Graz edition).

2.7 Creative tour de force

A remarkable piece of creativity on page 1, but barely visible, are the two birds drawn inside the top left and bottom left corner arches (figure 2.17).

Here, the artist's craftsmanship is once again strongly expressed in the eye and top of the beak drawn in one straight, continuous line. This way of styling requires a great deal of experience and creativity and is of a high quality. In the greatly enlarged part of the birds in figure 2.17, the very clean lines are also clearly visible. Incidentally, I have only been able to discover these two examples in the preserved Mexican codices.

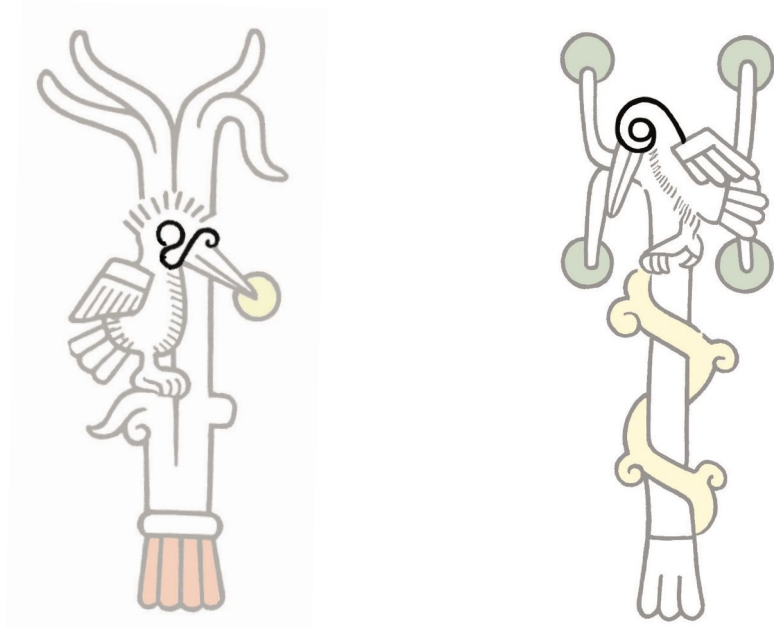


Figure 2.17 - Two examples of the cleverly stylized transition from eye to beak in one smooth continuous line.

It is clear from the foregoing that the Codex Fejérváry-Mayer must have been made by a highly experienced, creative and skilled artist. The next step is to see how this very gifted artist has used his or her artistic qualities in shaping the 5 themes that make up page 1 of the Codex Fejérváry-Mayer and the way in which they are intertwined into a harmonious whole.

3 The ordering of time

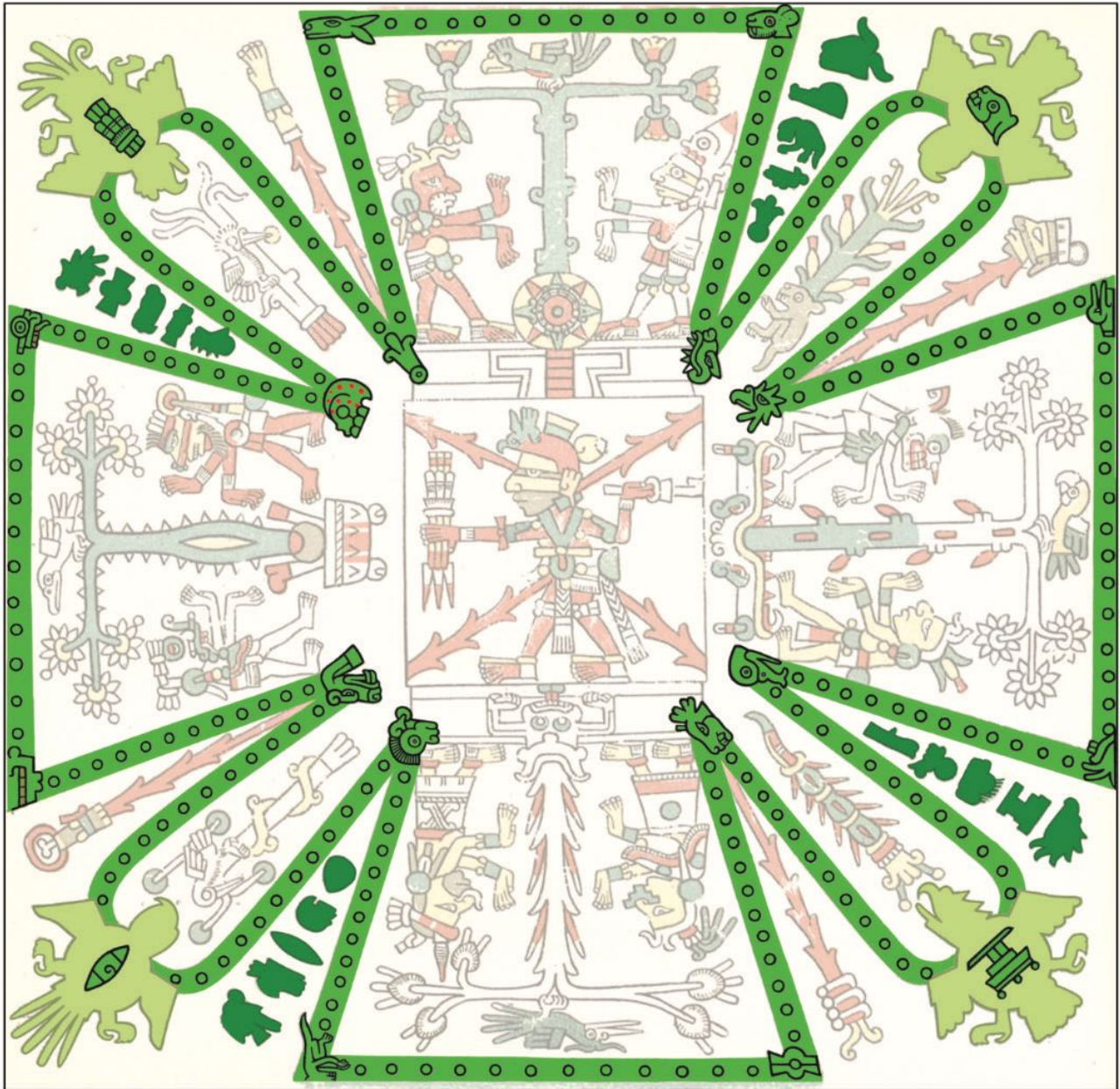


Figure 3.0 - Different methods of the ordering of time integrated as a symmetrical framework around the scene on page 1 of the Codex Fejérváry-Mayer.

As mentioned before, the first thing that immediately stands out in the scene on page 1 of the Codex Fejérváry-Mayer is the symmetry, which is clearly determined by the frame consisting of trapezoids and corner arches. In and between this framework of the four colored trapezoids and the four colored arcs, different units and counts of time are included. Together these form the theme of the ordering of time, in which especially the 260-day count in various forms is central. It is therefore this theme to which the other themes must adapt and which determines their place in the whole. Hence, this theme will be discussed first.

However, this artist himself did not come up with the philosophy and structure behind the themes used concerning time, space and religion, as this dates back to a few thousand years earlier. This interweaving of the different themes into one coherent whole can also be seen in the Codex Laud (figure 3.1 left) and the Codex Madrid (figure 3.1 center). For comparison, the image on page 1 of the Codex Fejérváry-Mayer is also shown (figure 3.1 on the right), which is immediately noticeable because of its prominent symmetry. I think everyone will agree that such a complex structure must be the result of many years of experimentation and development.

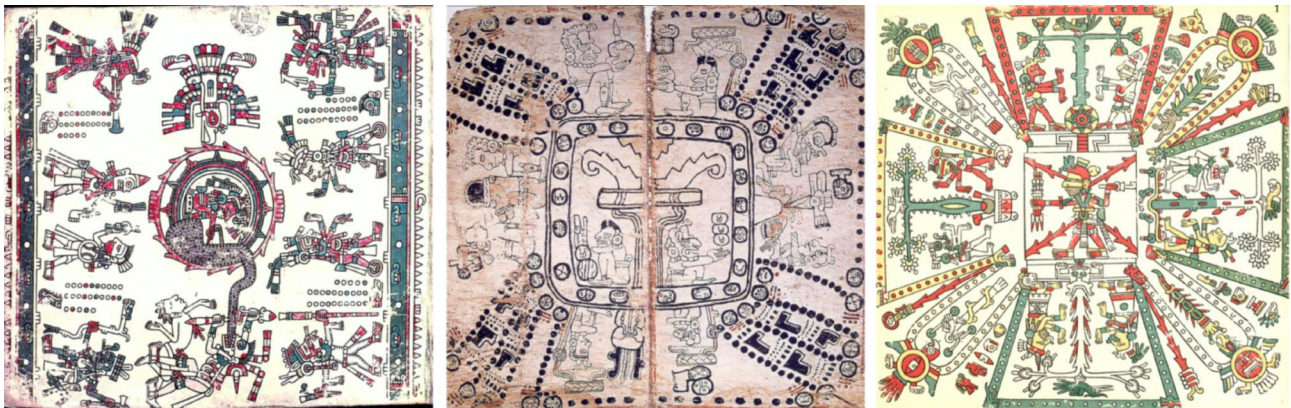


Figure 3.1 - Codex Laud (left), Codex Madrid (center), Codex Fejérváry-Mayer (right).

3.1 Spatial pattern

The artist who designed this scene has made use of a number of long-established principles and patterns based on philosophy, culture and religion. It cannot be otherwise than that the creators of these scenes have used this old cultural legacy as a guideline to determine the spatial structure of this page with its help and to portray this with a great deal of creativity and spatial insight in a scene that they can understand. A task that, due to the content of and cohesion between the various themes, you certainly cannot simply realize in a few days.

It is therefore obvious that the complex scene as seen on page 1 of the Codex Fejérváry-Mayer is the result of a lengthy and very gradual process that most likely must have started around 1500 BCE (Schoenmakers, 2020a). A wonderful, ingenious and harmonious integration of time, space and religion embedded in different themes that paint a picture of the way of life and thinking of the ancient cultures in Mexico and adjacent areas.

The life of the ancient cultures of pre-Spanish Mexico was governed by the measurement of time. Time was the guiding mechanism of their entire existence, everything was intertwined with it. Of course they weren't the only ones in the world with this obsession at the time.

The Egyptians, Sumerians, Babylonians, Chinese and Harappans preceded them. And for modern humanity, measuring is still an obsession to this day. Can you imagine our society without clocks, calendars, calendars and GPS?

Although we now work with nanoseconds, for example in telecommunications, space technology and computer technology, in ancient Mexico the solar day was the smallest measurable unit of time. They did not know the phenomenon of hours, minutes and seconds. Converted into our Western Standard Time, an average natural solar day in ancient Mexico therefore lasted about an average of 57 seconds longer than our clock-determined and whole-hour rounded modern standard days of exactly 24 hours.

In our count of days, a day is named and counted from midnight. This is in contrast to ancient Mexico where a day and a year were only counted after it had passed. But whether the passage of a day was in the morning, afternoon, or evening, the scholars still disagree and is immaterial to this discussion.

The Maya, Aztec and many other peoples of ancient Mexico called the time count "the counting of days," a literal translation of the Maya word "*tzolkin*" and the Aztec Nahuatl word "*tonalpohualli*". And that is the real core of the entire pre-Hispanic Mexican counting system. The days counted at that time were natural solar days. These solar days were counted in a unique, but simple way. The 20-digit (vigesimal) system was used as a counting system, probably based on the 10 fingers and 10 toes of a human. And just as we now record our day count according to the 10-digit system in units of days, months, years, centuries, and millennia, so they did in ancient Mexico. But they used a different method than we are used to now.

3.2 Two systems of time reckoning

Over the course of world history, various types of calendars and time ordering systems have been developed, some of which are still in use. The three best known systems of time reckoning are the lunar calendar, the lunar-solar calendar and the solar calendar. The current, most widely used, calendar in the world is the Gregorian solar calendar. You know, that of a year of 365 days, 12 months, 52 weeks, 28 to 31 days a month, 7 days a week, 24 hours a day, 60 minutes an hour, 60 seconds a minute and almost every 4th year a leap day.

We like to think that our current calendar is in keeping with the seasons of the natural solar year. But this is really a misrepresentation. Because did you know that our trusted (Gregorian) calendar is based on a circulation of 400 years? And that a leap day is not always inserted once every 4 years, but that a leap day is skipped three times in those 400 years and therefore a total of not 100 but 97 leap days are counted in that period? In addition, small time corrections take place in the meantime. All this to keep in step with the seasons of the natural solar year as much as possible. Our current Gregorian calendar is an artificial, unnatural and multicultural mixture of all kinds of preferences and interests. A real compromise model but very functional (Schoenmakers 2020b).

Otto Neugebauer (2016: 81), a noted and eminent mathematician and historian of science, says of our Western calendar: "... our current division of the day into 24 hours of 60 minutes each is the result of a Hellenistic adaptation of an Egyptian practice in conjunction with the Babylonian custom of counting. "

Although some would like us to believe otherwise, it has been proven that the ancient Mexicans used the natural solar year for their calendar systems for thousands of years with its 365 solar days. Although some still do not want to see this, these 365 solar days in the 400 years with $400 \times 365 = 146,000$ solar days lasted in Western time as long as the $400 \times 365 + 97$ Western calendar days. It is this sun-based system of time reckoning with the different calendars based on it that the ancient Mexicans used in a continuous process of thousands of years and was also completely woven into their culture.

It was this system of time reckoning that besides the ruling class and the priestly caste also the ordinary citizens had to deal with. It is also this system that we have to deal with in the Codex Fejérváry-Mayer. This system of time reckoning included, for example, the 260-day calendar or ritual calendar, the 360-day festival calendar, and the 52-year cycle.

For the sake of completeness, however, it should be mentioned that the Maya in particular had developed a second system of time reckoning that was used specifically by and for rulers to record important events in their lives on all kinds of monuments.

For this they used a system of time reckoning that we can compare with that of the astronomical Julian day. The core of this system, the so-called Long Count, was the continuous counting of days from a fictitious fixed starting point in the past so that one knew exactly how many days had passed since that starting point in time. In further discussion, however, we will focus entirely on the solar year as the basis for the ordering of time in the Codex Fejérváry-Mayer.

3.3 Counting days

Before discussing the theme of the ordering of time, we must first know how the ancient Mexicans dealt with the phenomenon of time. The basic principle for organizing time was and is of course the counting of days. In the past these were the irregular natural solar days and nowadays the average, artificial, Western standard days of 24 hours. When we talk about counting time in Mexico before the Spanish invasion and conquest, we are talking about counting solar days, the smallest unit of time that could be recorded in that period, and the only surefire and most accurate method of counting time. What most forget is that the solar day in the past had a slightly different duration than the our day of today. Our calendar day is about 57 seconds shorter than a solar day, as I have extensively demonstrated in a recent publication (Schoenmakers 2020b).

Different periods of days were used in ancient Mexico to measure, record and keep track of time, but always with the solar day as the smallest unit. And as we count the days in weeks and months, so the nations of ancient Mexico and surrounding areas used for their time counting sequences of 13 day numbers and 20 day signs, doing the same thing. It is not known what these units were called in the native language, so we just name them after what they are, the unit of 13, which is made up of 13 day numbers, and the unit of 20, which is 20 day characters. The Spaniards called the sequence of 13 day numbers "*trecena*", literally "group of 13 days", and the sequence of 20 day numbers they called "*veintena*" or "group of 20 days". It is this combination of 13 day numbers and 20 day signs that has formed the basis for the system of time reckoning in ancient Mexico from the Olmecs in ca.1000 BCE to the arrival of the Spaniards in 1519 CE.

The unit of 13 consisted of a series of numbers from 1 to 13 that repeated themselves continuously in an infinite cycle. As soon as day number 13 of this unit had passed, the next unit immediately started again with day number 1. This is similar to how we count the days of a month from 1 to 28, 29, 30 or 31. As soon as the last day of a month has passed, the count starts again with day number 1 of the next month. In ancient Mexico, a unit of time, such as a day or a year, was not counted until after it had passed. This in contrast to the current Western custom of counting a unit from the beginning, just think of New Year's Eve where the transition from December 31 to January 1 is celebrated at exactly midnight.

Because the peoples of ancient Mexico did not have a script, they used a system of dots or a combination of dots and stripes to record these 13 numbers (figure 3.2). The former was mainly used by the Aztec and Mixtec, the latter by the Olmec and Maya, among others. It is striking that in the Codex Fejérváry-Mayer, however, both are used. One side of the manuscript uses the Aztec script on page 1 and a combination of the Maya and Aztec script on pages 5-22. However, on the other side of the manuscript, pages 23-44 with the exception of page 43 at the top, only the Aztec spelling is used.

The second unit of time consisted of a series of 20 different day signs. And just as we use seven fixed day names for a week, Monday through Sunday, in ancient Mexico they used twenty easily recognizable signs for the 20 different days. Because they had no alphabetical script, these 20 day signs were displayed in a stylized manner in a way that was recognizable to everyone.

Figure 3.3 shows these 20 day signs as they occur in the Codex Fejérváry-Mayer. On page 1 we find, most likely due to lack of space, two particularly creative forms of the day signs deer and jaguar that take up less space. This series of 20 day signs always starts with the day sign crocodile and always ends with the day sign flower.

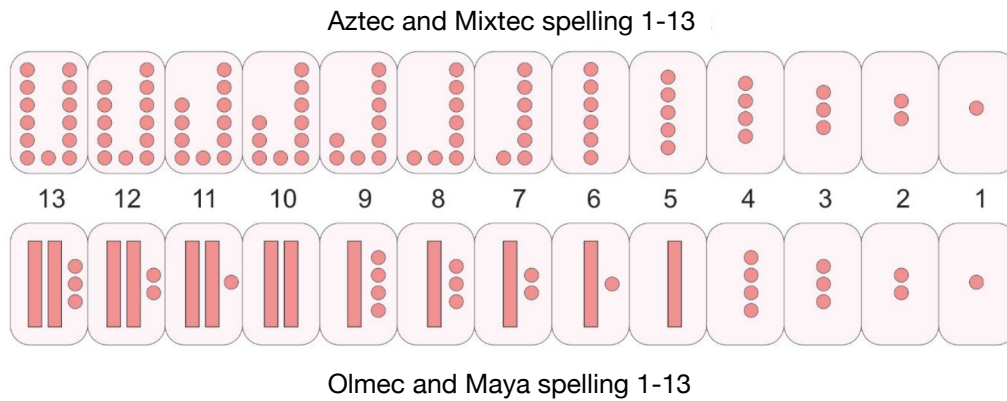


Figure 3.2 - The two different spellings of numbers 1 to 13. Both spellings are present in the Codex Fejérváry-Mayer.

For these 20 day signs images of animals, plants, natural phenomena and religious attributes were used, which played an important role in the culture and religion of the different peoples of ancient Mexico.

These 20 day signs and their meanings were also used invariably from their origin around 1000 BC until their demise in 1519 AD when the Spanish invaded and destroyed this unique system.

And just like the series of 13 day numbers, the series of 20 day signs was also continuously repeated. As soon as the 20th day sign flower was reached, the day that followed again received the day sign crocodile (figures 3.5 and 3.6) and the next series of 20 day signs began.

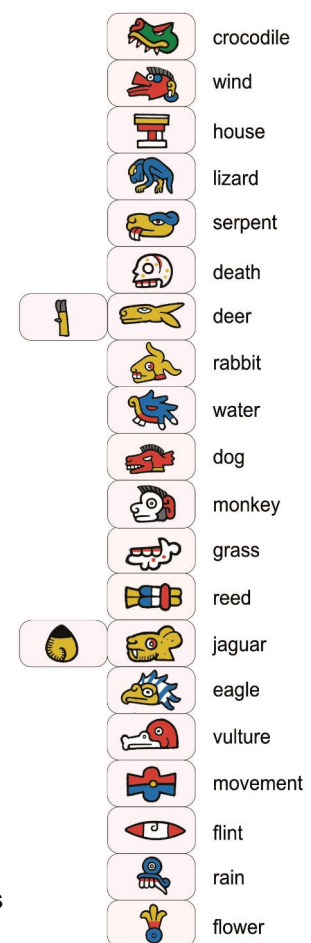


Figure 3.3 - Fixed sequence of 20 day signs with two modified signs on the left.

3.4 Principle of the 260-day count

The principle and basis of the total system of time reckoning that was used continuously for thousands of years by all peoples in and around ancient Mexico (Mesoamerica) was the combination of 13 day numbers and 20 day signs. From this combination, the 260-day count was born. But besides being the basis for the bigger picture, this 260-day count was at the same time a sacred count, a ritual calendar, a sacred almanac on the basis of which all kinds of predictions were made. This is the count which was called "*tzolkin*" by the Maya and "*tonalpohualli*" by the Aztec, the counting of days. This 260-day count can also be found in full in several ancient Mexican manuscripts.

The structure and operation of this 260-day count is as simple as it is ingenious. The structure was based on the least common multiple of the sequences of 13 and 20 where 13 is prime. And yes, that is 260 because 13×20 is 260 and 20×13 is also 260. So there were 20 series of 13 day numbers in this count and 13 series of 20 day signs.

For the operation, the individual series of 13 and 20 were placed one after the other until the total of 260 days was reached, either 20 series of 13 day numbers (figure 3.4) or 13 series of 20 day signs (figure 3.5). These two different series were inextricably linked and were used in this conjunction to provide each of the 260 days in this count with a unique day name.

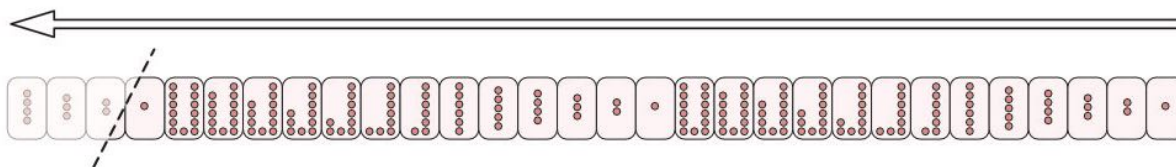


Figure 3.4 - Principle of consecutive series of 13 day numbers.

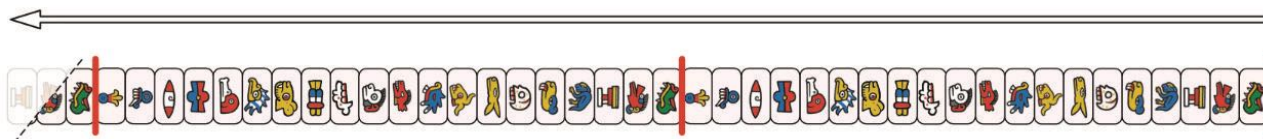


Figure 3.5 - Principle of consecutive series of 20 day characters.

The two separate series of 20×13 day numbers and 13×20 day signs, together the 260 day count, were forged into an inseparable whole by taking day number 1 and day sign crocodile as a starting point. Not a strange choice because in ancient Mexico the crocodile stood for the holy mother earth, the source of life.

Figure 3.6 shows how this system worked in practice. The reading direction was usually right to left. So starting with the day name '1 crocodile' on the far right, the 2nd day name becomes '2 wind', the 3rd becomes '3 house' and this goes through to day number 13 which in combination with the day sign reed receives the day name '13 reed' (figure 3.6).

Then the next series of 13 day numbers starts while the series of 20 day signs continues as usual. So the 14th day name becomes '1 jaguar', the 15th becomes '2 eagle', etc. until the 20th day sign is reached and the day name becomes a combination of day number 7 and day sign flower, so together day name '7 flower'. This combining of day numbers and day signs continues until the 260th day is reached which will always bear the day name '13 flower'. In total, 260 unique day names could be formed with this 260-day count. After the day name '13 flower', the same 260-day count started again with the day name '1 crocodile' and ended again after 260 days with '13 flower'.

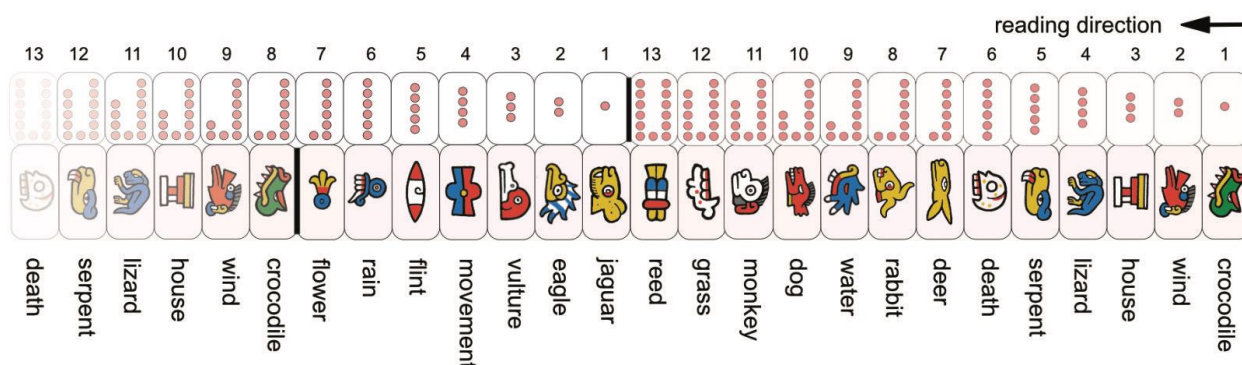


Figure 3.6 - Combination of 13 day numbers and 20 day signs to form a cycle of 260 days and day names that can repeat itself indefinitely.

The 260-day count was part of a system of time reckoning that was primarily intended for daily and civil purposes. Although only the priests and the highly placed (rulers and relatives) mastered this form of the counting of time and interpretation of omens, also ordinary citizens had to deal with it directly or indirectly.

Personal names, for example, were given by priests to newborns on the basis of the day of birth during the 260-day count. When someone was born in the day '5 snake' then it got '5 snake' as a personal name. At the same time, on the basis of the predictions connected to each of the 260 days a destiny was given for this newborn. In this case, the 260-day count served as the sacred almanac, the ritual book of the predictions. But priests also made predictions to rulers and warriors, such as the most favorable moment of warfare.

With the principle of the method discussed above of the counting of days as a basis, various units of time could be assembled. The best known thereof and also the basis for most types of counts, is 260 days. In figure 3.7, the 20 day signs and 13 numbers are shown as highly simplified yellow and green rectangles.



Figure 3.7 - Strongly simplified combination of 13 day numbers (yellow) and 20 day signs (green).

With the help of this highly simplified display of the series of 13 and 20, the full cycle of 260 days looks like in figure 3.8 as a line-shaped horizontal row.

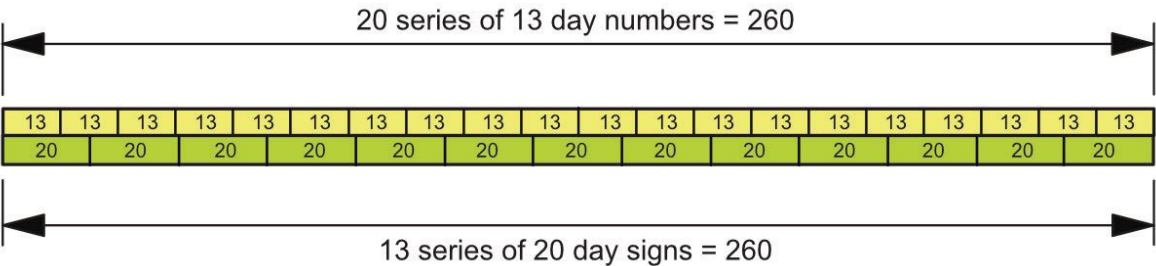


Figure 3.8 - Strongly simplified full cycle of 260 days.

We see this straightforward use of a full 260-day count or ritual almanac reflected in various pre-Hispanic manuscripts such as on the pages 1-8 of the Codex Borgia, the pages 1-8 of the Codex Vaticanus B and the pages 1-8 of the Codex Cospi.

Nowhere in the old Mexican manuscripts or inscriptions from for the Spanish raid appear circular counts of days. A timeline of days with a fixed start and end doesn't have to be round. It can also be a rectangle, triangle or polygon. Although they knew the circle as a shape, for there are many examples of this, it was not used to represent a count as a cycle. Thinking in and displaying of circles as a practical application was not common in ancient Mexico. Displaying a cycle as a circle for these counts is therefore a typical Western approach and we therefore only see this in colonial manuscripts and all kinds of later discussions by Western authors.

The first day of this 260-day ribbon was always '1 crocodile' during the entire Mexican history of more than 2500 years and at all native peoples, and the last day was always 'flower'. As soon as this last day had expired, the next 260-day cycle started again with the 1st day name '1 crocodile'. And this could continue to infinity.

This 260-day counting is the most natural and purest form of counting days. It is also this count which forms the dominant framework of the scene on our page 1 of the Codex Fejérváry-Mayer and will be discussed further in this chapter.

3.5 The 260-day count

The 260-day count of page 1 of the Codex Fejérváry-Mayer is literally and figuratively the dominant framework within which the entire scene plays. This clearly reflects in the spatial placement and design of this count. For ancient Mexicans this may have been the stylized shape of a flower

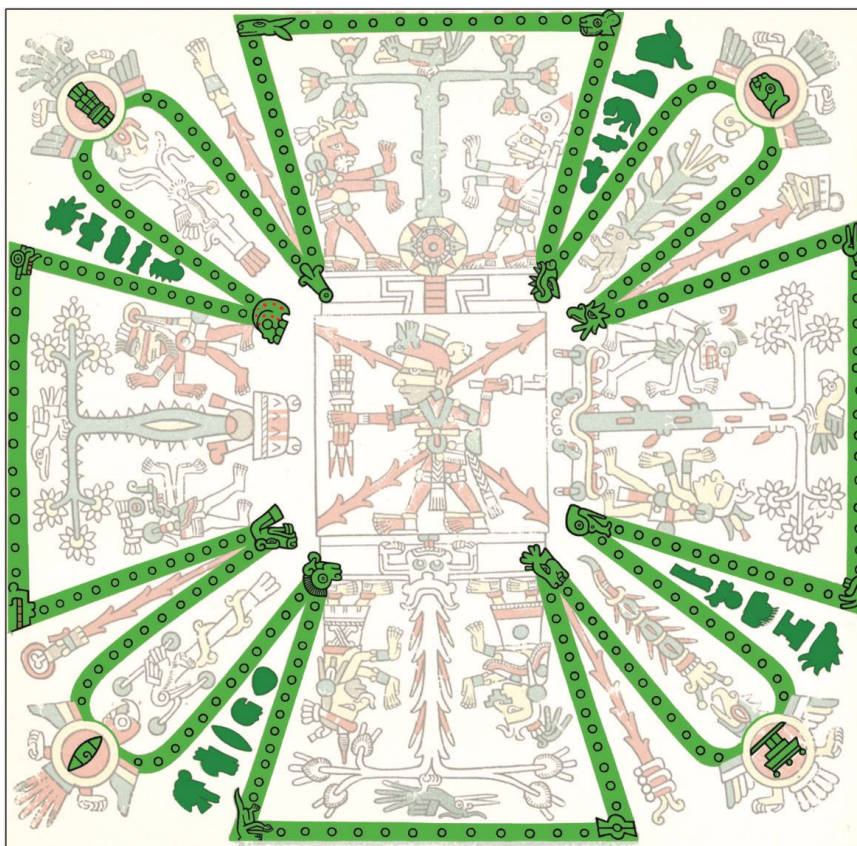


Figure 3.9 - Harmonious integration of various methods for counting 260 days.

In the foregoing, the operation of the full 260-day count has been explained as a perfect and never failing engine from the old native Mexican calendar. This count also greatly influenced the life in ancient Mexico and was used for multiple purposes.

In addition to a continuous counting system as a basis for the larger framework of the 52 years time reckoning, this 260-day count was mainly used in the form of a self-contained ritual almanac to make predictions. This is similar to contemporary astrology that uses planets, stars and constellations for doing predictions. Or the more than 400 years, annually issued, Dutch Enkhuiser Almanak who is full of sacred days, public holidays, predictions and things worth seeing for all 365 days of the year. Astrology is therefore of all times and peoples.

Somewhat comparable must the sacred 260-day ritual almanac have worked in ancient Mexico in which good, neutral or bad qualities or omens were attributed to each of the 260 days. These qualities and omens were read and interpreted by specially trained priests.

All kinds of practical matters were regulated and predictions were made on the basis of this ritual almanac. This differs from giving personal names to newborn children and predicting the fate of people, to determine diseases and healing, performing rituals at the right times and advising rulers about the most favorable moment to warfare. How this prediction exactly worked we will never know because this knowledge has been almost completely lost with the arrival of the Spaniards.

In addition to all sorts of omens, one or more deities also had to be taken into account at every day of this 260-day count which had other good, neutral or bad qualities and influences. It is therefore not surprising that the use of this count in the form of the ritual almanac was highly regarded at the deeply believing, indigenous peoples of the old Mexico.

Sometimes it is claimed that this 260-day count as almanac was also used to determine the most favorable periods for agricultural activities. As a basis and part of the larger whole of the old Mexican calendar, this is practically impossible because the 260-day count repeated itself in an infinite cycle (see also Norman, 2015: 111). As a stand-alone almanac this would be possible, but then a fixed starting point must be present in the year and that is not the case of the now known almanacs which continuously followed the 260-day count. Moreover, at that time there was no farmer who did not know itself the most favorable period to sow and harvest. Because they were these farmers who, long before there was such a thing as counting time or reading calendars, had been tested experimentally for centuries, which were the best periods for which crops. They really didn't need calendars or predictive priests. Moreover, nature cannot be controlled by human wishes and predictions.

This 260-day count can be found in all kinds of different forms and for different purposes in pre-Hispanic indigenous manuscripts. This can be as full display of 260 days in 5 horizontal rows of 52 daily marks each (Codices Borgia, Vaticanus B and Cospi) but also as 5 x 52-day, 4 x 65-day, 10 x 26-day or 20 x 13-day counts.

In particular, the coherence between the full or shortened 260-day count and the presence of directional signs, cosmic trees or specific deities is of great importance for answering the question on the potentially applied directions on page 1 of the Codex Fejérváry-Mayer.

3.6 Three methods of the 260-day count

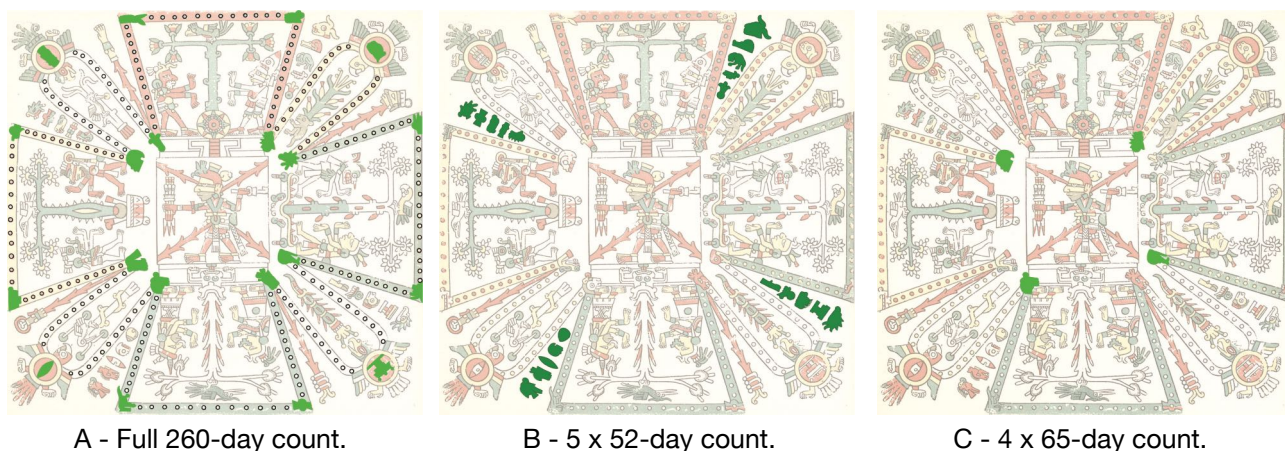


Figure 3.10 - Three different methods of the 260-day count in the Codex Fejérváry-Mayer.

In the complex scene on page 1 of the Codex Fejérváry-Mayer, three different methods are shown on which the 260-day count could be performed. In addition to the traditional full range, where all 260 days (figure 3.10 A) are displayed, the count of the 4 x 52-days (figure 3.10 B) and the 4 x 65-days (figure 3.10 c) are also recorded. These are usually applied separately in the old pre-Hispanic manuscripts, but in the Fejérváry-Mayer they are all three recorded at the same time and in a very cleverly way intertwined to a harmonious whole. Also in the Codex Madrid, pages 75-76, and the Codex Laud, page 1, such an integrated time reckoning system is shown. In addition to these three different methods to count periods of 260 days, the emphatic presence of the four year bearers in the corners also includes a hint at the count of 52-year. This will be discussed later.

3.6.1 Full 260-day count

The first and most detailed method of applying the full display of 260-day (*in extenso*) is in 20 series of 13 days. Only the first day sign from each series of 13 days on page 1 of the Codex Fejérváry-Mayer is depicted. Because it concerns every time the first day sign this automatically has the day number 1. The remaining, intermediate, day signs have been replaced by 12 small, colored or white, dots (figure 3.11).

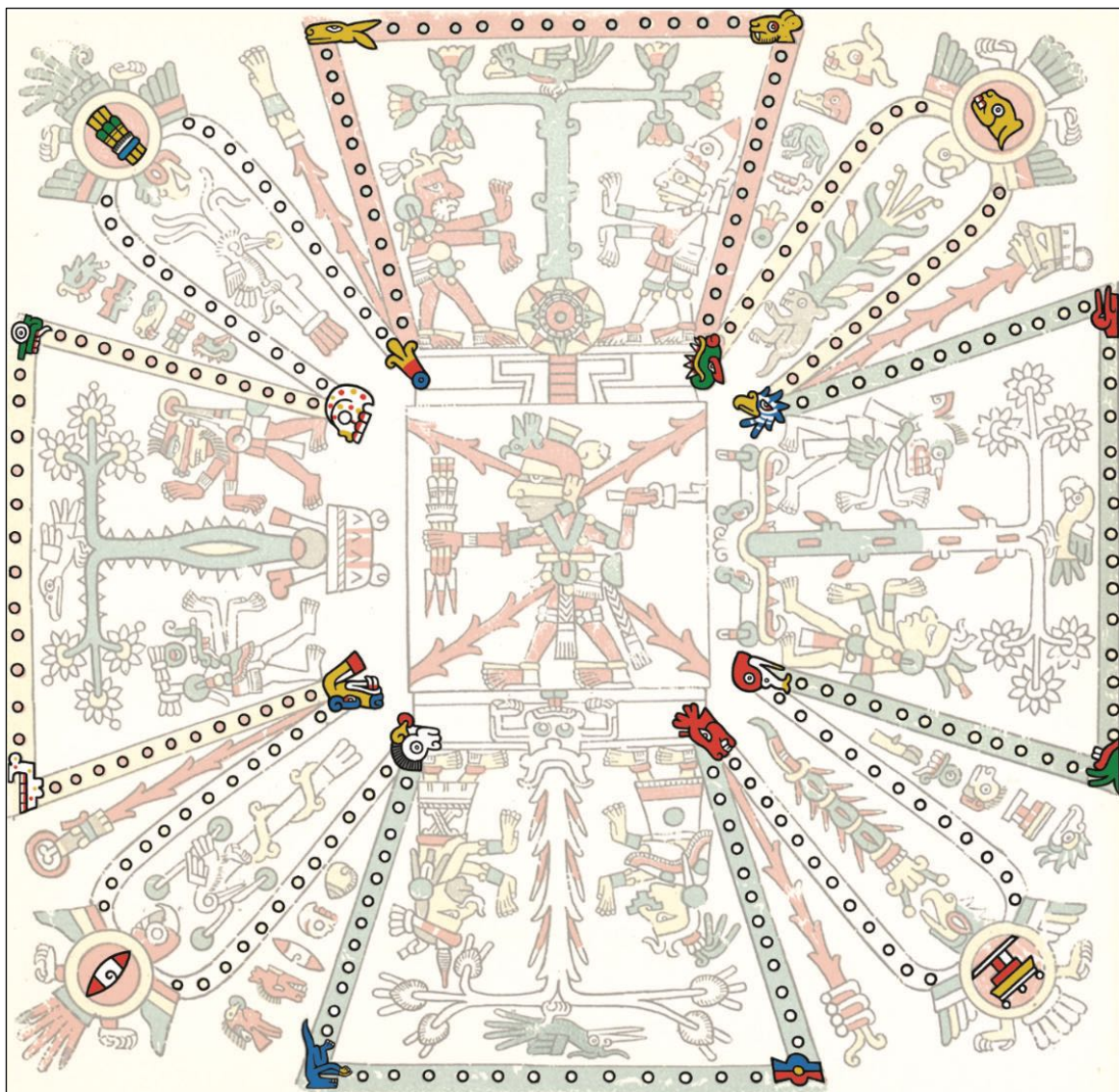


Figure 3.11 - The principle of the full 260-day count on page 1 of the Codex Fejérváry-Mayer with a day sign for every 13-day period followed by 12 dots.

The 260-day count always starts, also as almanac, with day sign crocodile and day number 1 that together form the day name '1 crocodile'. We find the day name '1 crocodile' at the foot to the right of the red trapezium (figure 3.12). The day signs are always in a fixed order in the 260-day count that must be followed. It is obvious that this count is anticlockwise, so from right to left.

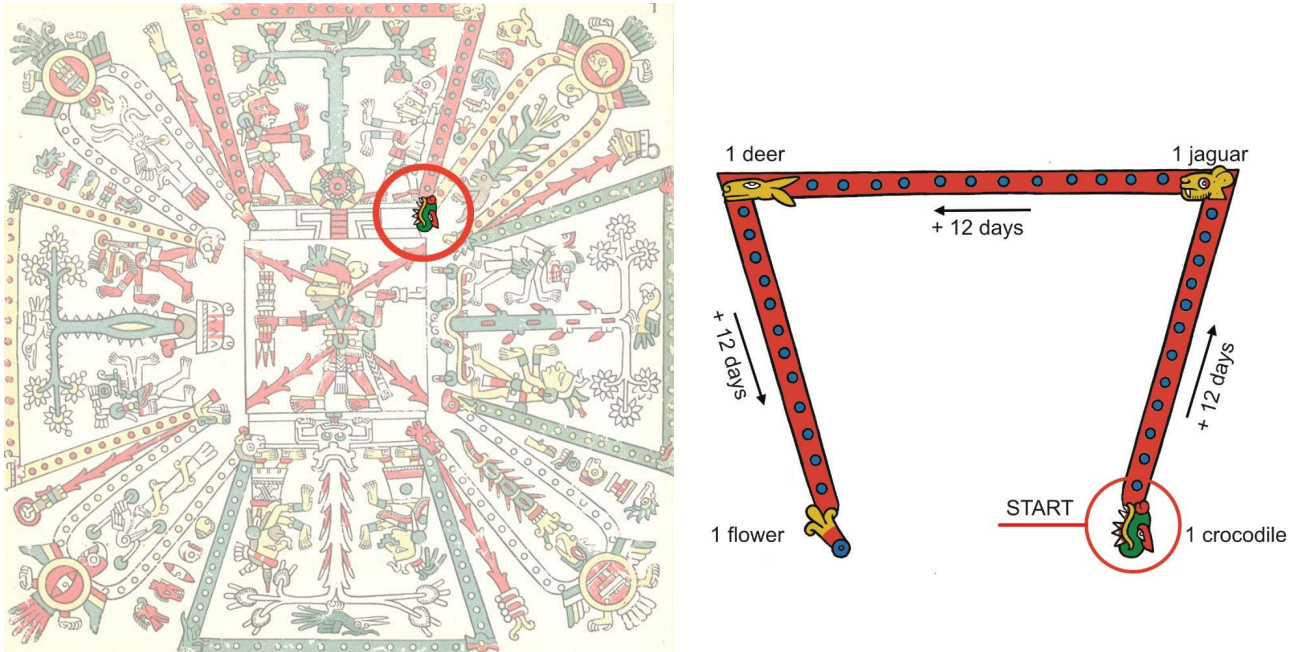


Figure 3.12 - Fixed starting point of the 260-day counting is the day name 1 crocodile.

Following from day sign crocodile the line of the red trapezium to the top and the 12 blue dots, we come across the day sign jaguar. So the day sign crocodile is therefore the 1st day and gives together with the 12 blue dots as intermediate days a total of 13 days. The next day sign, the 14th in the total of 260 and the 1st of the following series of 13 days, is jaguar.

With the day sign jaguar, the count starts with 1 and the day name '1 jaguar'. This day sign also looks in the direction in which we must further count, so to the left. Another 12 blue dots added gives again a series of 13 days.

On the top left of the red trapezium we find the 1st day of the next series of 13 days, the day sign deer. This again is the first day sign of the next series of 13 and therefore gets the day name '1 deer'. We are now going down to the left foot of the red trapezium where the next day sign is flower (figure 3.12). This is also the 1st day of the next series of 13 days and therefore receives '1 flower' as a day name.

Arriving at the day name '1 flower' we have passed a total of 3×13 days = 39 days in the red trapezium and starting with the white arc at the top left.

At the foot of the first white arc at the top left (figure 3.13) we start with the day name '1 flower'. From day sign flower up we pass 12 white circles that are read as days and come to the day sign reed with the day name '1 reed'. This day sign is in a larger yellow and red colored double circle, the symbol for a shield, which is on the back of a flying bird.

The four birds in the corners play a role in the belief of the old indigenous Mexicans in combination with some gods. The round shield within which the day sign has been depicted is shown by the artistic writer in this scene to indicate the reader that this day sign is one of the four year bearers, an extremely important part in the old Mexican calendar and time reckoning. Later more.

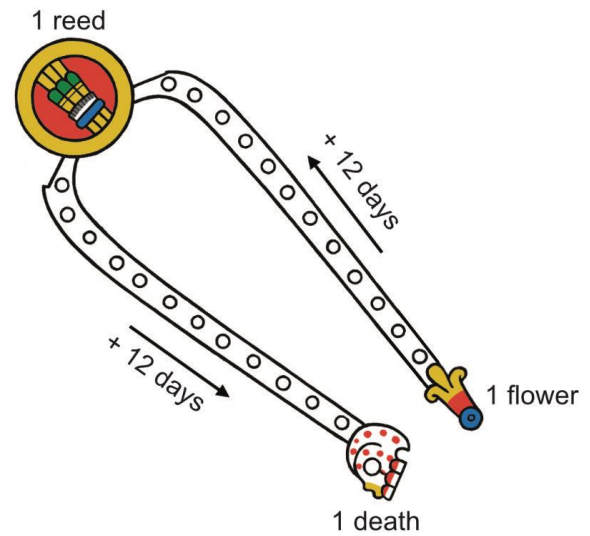
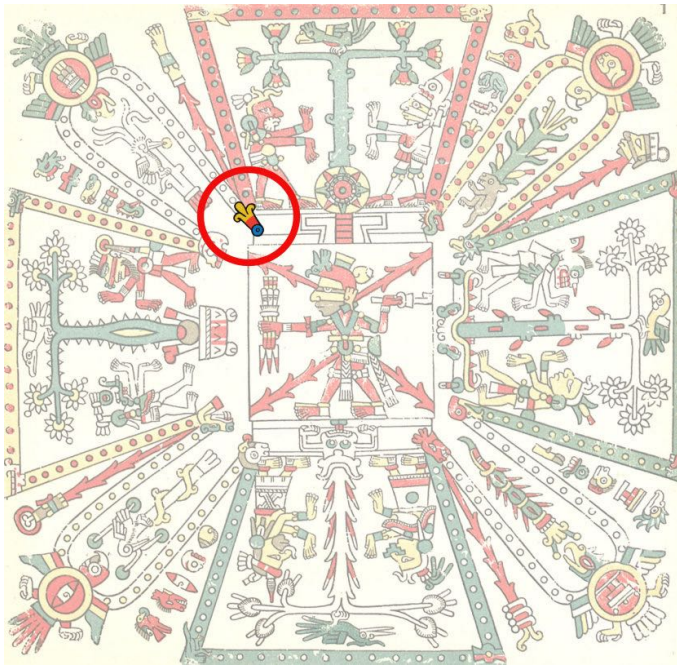


Figure 3.13 - Starting point count of the 1st corner arc at the top left of the day 1 Flower.

From the day sign reed, we follow the white arc down to the day sign dead with as a day name '1 death'. Here too, after the day sign, we have passed 12 white dots, which needs to be read again as $1 + 12 = 13$ days. This white arc contains a total of 2×13 days. Together with the red trapezium of 3×13 days, this makes a total of 5×13 days, which amounts to 65 days. With this a quarter of a full 260-day count went through.

The same process also applies to the yellow trapezium with the white arc, the blue trapezium with the white arc and the green trapezoid with the yellow arc. With this we arrived at the 1st day sign crocodile and the 260-day cycle starts again. This cycle of 260 solar days has, from its invention by the (pre-) OLMEC more than 3000 years ago without any interruption or adjustment, been the basis of the old pre-Hispanic Mexican time count until the Spanish invaders and occupiers put an end to this after their raid in 1519 CE.

With a full 260-day count as in the frame described above, all 260 days are shown. Such a full 260-day counting is also called an *in extenso* (complete or full) count. Such full 260-day counts were usually provided per day with images that expressed all kinds of predictions and served as the ritual or sacred almanac.

What is striking in this frame with his 260 days is that 240 of these are displayed as dots and 20 as the usual series of day signs. The creative creator has deliberately displayed both the *in extenso* (full) and the shortened 260-day count.

The complete 260-day counting was also linearly applied in 5 horizontal series of ($4 \times 13 =$) 52 days with a series of 13 day signs on 2 pages. When it concerns a ritual almanac, 260 full day signs are shown instead of dots. Examples of this are present in the pre-Hispanic Mexican manuscripts Codex Borgia (1-8), Codex Vaticanus B (1-8) and Codex Cospi (1-8). However, the best example can be seen in the Codex Borgia on the pages 1-8 (figure 3.14). The count runs from page 1 lower right, horizontally to the left to the end on page 8, and then continue in the 2nd row of bottom right on page 1. This zig-zag movement continues until the 260th day is achieved extremely left in the 5th horizontal row on page 8. So the reading direction is from right to left and from bottom to top.

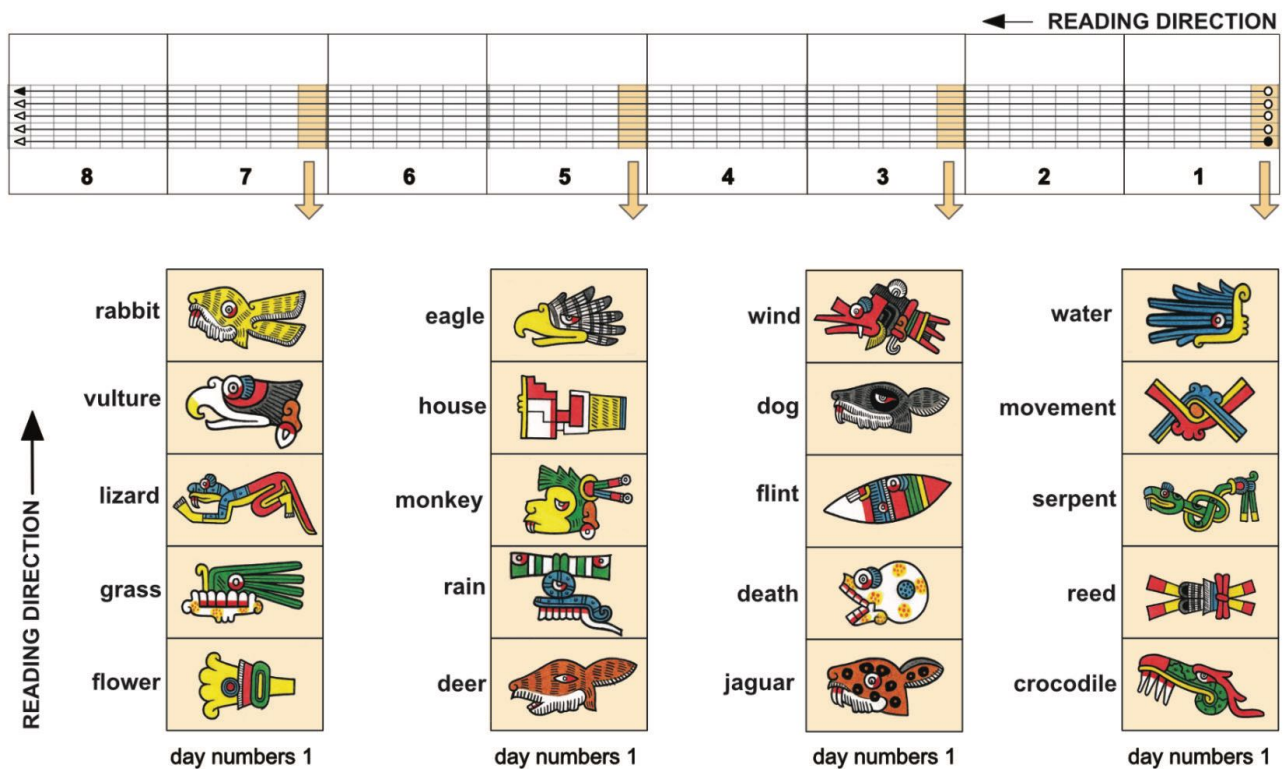
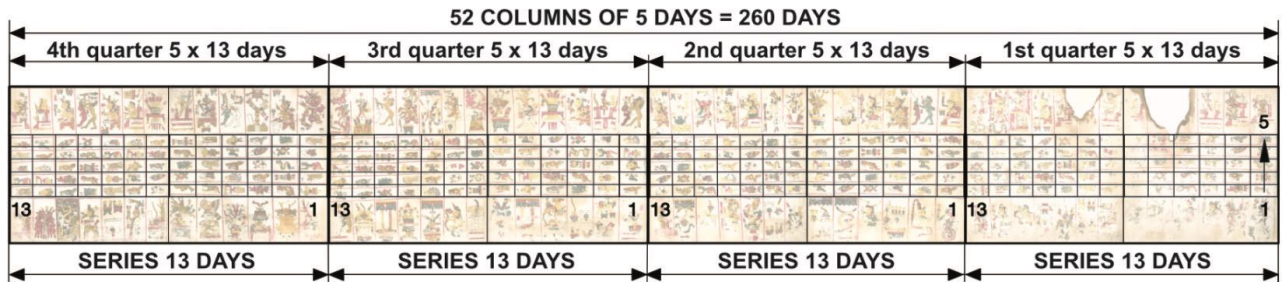


Figure 3.14 - Full, in 5 horizontal series of 4 x 13 is 52 days shown, 260-day count over the pages 1-8 of the codex Borgia with a reading direction of each series from right to left and from bottom to top. The 4 groups of day signs at the start of each series of 13 day signs together form the short shape of the 260-day count, usually used as 5 x 52-day count due to space saving.

In addition to the display of a full (*in extenso*) 260-day count in 5 horizontal rows of 52 day signs, such as in the codices Borgia, Vaticanus B and Cospi, this count is sometimes completely displayed as 20 separate series of 13 days (20 x 13). Hereby every series, or sometimes 2 series, of 13 days in an L-shape was shown on a separate page. For this, 20 or 10 pages were used respectively. Examples of this are present in the Codices Borgia 61-70 (see example of 2 series of 13 days on one page in figure 3.15), Vaticanus B 49-68, Borbonicus 1-20 (figure 3.16 for 1 series of 13 days on page 14 of the Codex Borbonicus) and the Tonalamatl Aubin 1-20 (figure 3.17 for one series of 13 days on page 5 of the Tonalamatl Aubin).



Figure 3.15 - Example of 2 sets of 13 days in L-shape on page 64 of the Codex Borgia. The full 260-day count is spread over pages 61-70.



Figure 3.16 - Example of 1 series of 13 days in L-shape on page 14 of the Codex Borbonicus. The full 260-day count is spread over pages 1-20.



Figure 3.17 - Example of 1 series of 13 days in L-shape on page 5 of the Tonalamatl Aubin. The full 260-day count is spread over pages 1-20.

Sometimes the 260-day count on pages 12b-18b of the Codex Madrid is also seen as a full (*in extenso*) 260-day count (Vail 2004: 259-264). But for a full 260-day count, this should have shown 4 rows of 65-day characters. However, because 4 periods of 13 days are missing at the end of the 4 horizontal rows of 52 day characters (figure 3.18, page number 18), this cannot be a complete (*in extenso*) count. The creator has probably tried to depict a full 260-day count in the form of 4 x 65 days, but for some reason did not complete it. In any case, there is no complete representation of 260 day characters available here, which is of course a prerequisite to be able to call this a true *in extenso* 260-day count.

When we look at the structure of the 4 rows of day signs on pages 12-18 of the Codex Madrid, it appears that each horizontal row has 52 consecutive day signs (figure 3.18). The sequence of the displayed 52 day characters in these 4 rows is correct. According to this order, the reading direction is left to right and top to bottom. At the end of each row of day signs, page 18 constantly lacks the consecutive sequence of 13 day signs, which, however, cannot be displayed on page 18 because the physical space for it is lacking. Remarkable are the 8 empty black circles on the right side of page 18, which may indicate that the image was not finished.

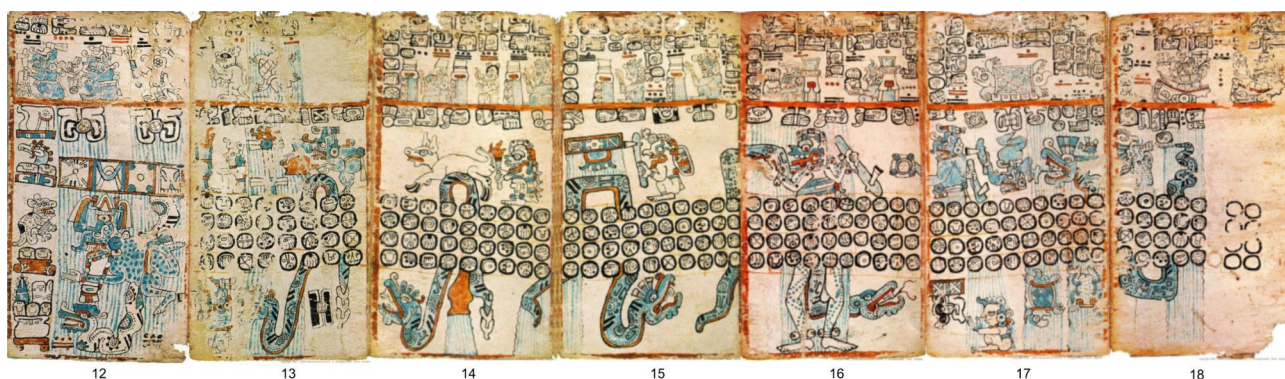


Figure 3.18 - Pages 12-18 of the Codex Madrid with 4 horizontal rows of 52-day characters per row. For a full 260-day count (*in extenso*), 52 day characters are missing.

In the Codex Fejérváry-Mayer, also a full 260-day (*in extenso*) count appears on page 44 (figure 3.19). The scene represents the wizard and trickster god Tezcatlipoca, recognizable by his foot bitten off by the earth crocodile, where only a piece of bone sticks out to which a stylized obsidian mirror is attached. This Aztec god is surrounded by the 20 day signs with 12 dots each, which together represent 20 x 13 days, so the 260-day count.

It is striking, however, that these 20 day signs are not in the usual order (see figure 3.20 A). The order shown on page 44 can be read in 2 different ways. The first is to take the usual starting sign, the day '1 crocodile', as a starting point, as did Eduard Seler (1901: Appendix A Figure XII). The order will then be as shown in figure 3.20 B and does not correspond to the fixed order of this series. The second option is to take the open space to the left of the face of the deity as a separation and start with the day '1 flint'. This produces an order as shown in figure 3.20 C. But this also does not match the fixed order of the 20 day signs. Why the creator of this scene chose this sequence is not known to me. It has been suggested that the day signs placed in this way may have something to do with references to body parts. But in any case, there is no concrete indication of this here.

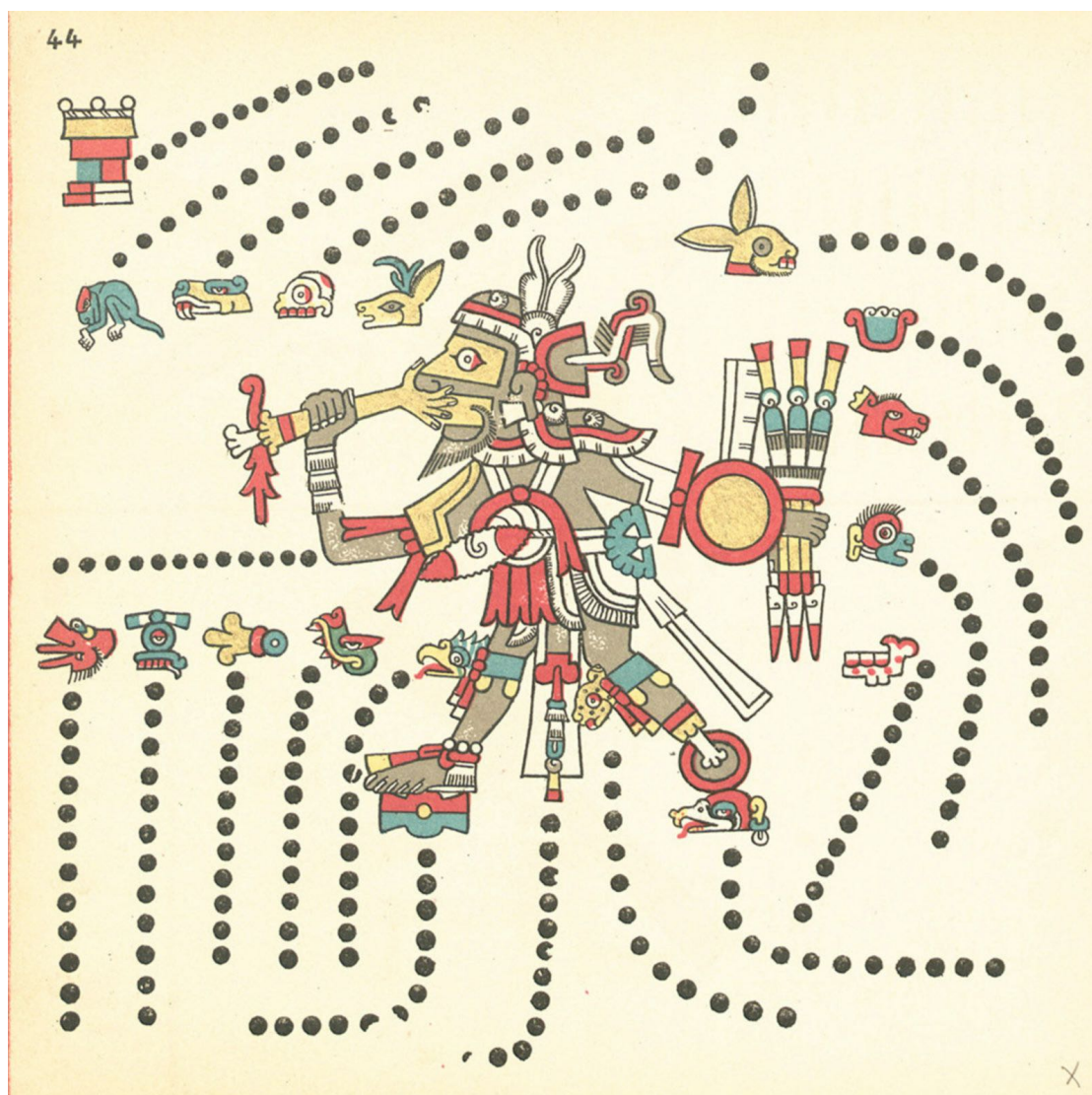


Figure 3.19 - Full 260-day count of 20 periods of 13 days in an unusual order as shown on page 44 of the Codex Fejérváry-Mayer.

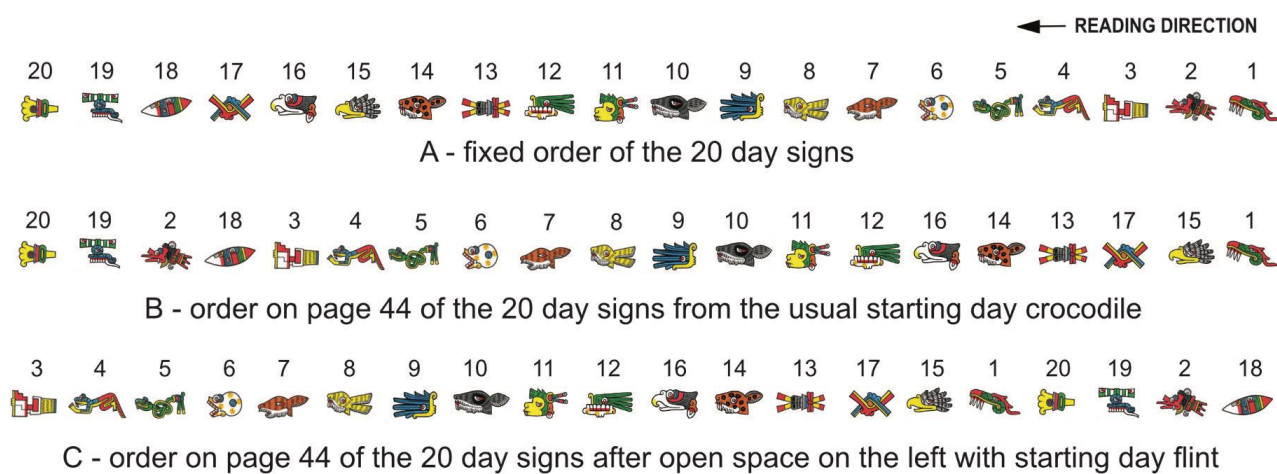


Figure 3.20 - Common order compared to the 20 day signs (A) and 2 possible variants (B and C) as used in the scene on page 44 of the Codex Fejérváry-Mayer.

Displaying a 260-day count in full not only takes a lot of time to create, but also takes up a lot of space in a manuscript. Hence, an short form of displaying this important 260-day count was usually chosen. The creator of page 1 of the Codex Fejérváry-Mayer has worked very creatively and ingeniously into a number of forms of this short 260 count in the scene on page 1.

3.6.2 Short 260-day counts

The foregoing has clearly shown that a full 260-day count occurs in only a small number of the extant pre-Hispanic Mexican manuscripts. Most of the 260-day counts are shown in an short form. The basis for the construction of this short form consists of counting series of 13 days in different ways.

The basic principle of the short count of 20 series of 13 days is shown in figures 3.14, 3.21 and 3.22 in which the first day signs of the 20 series of 13 days are applied (see column with 20 day signs above the red circled day number 1). We also encounter this principle in the full 260-day count on page 1 of the Codex Fejérváry-Mayer in which the 20 day signs are shown as the starting points of the 13-day periods.

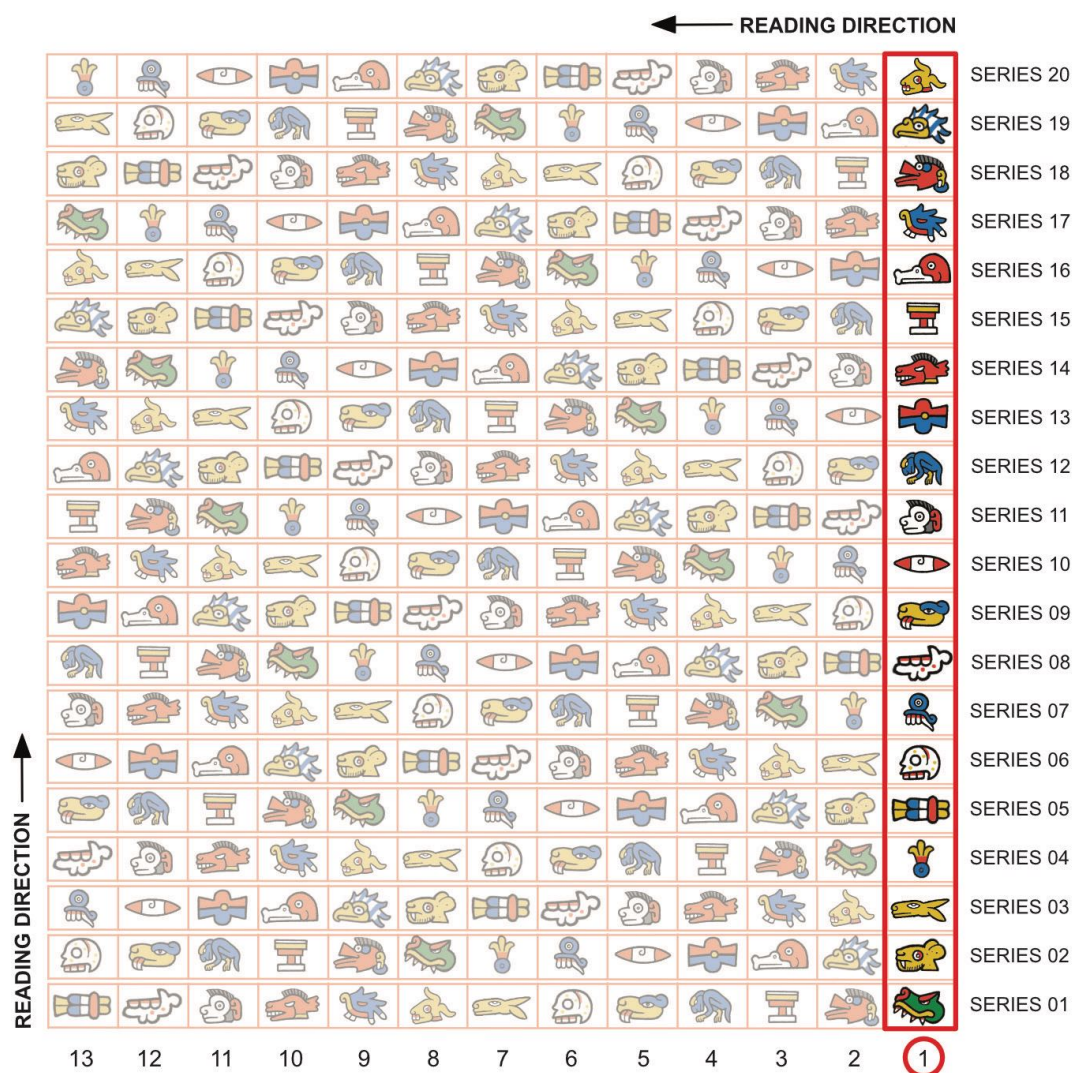


Figure 3.21 - Visualized (Aztec) principle of how in the ancient Mexican manuscripts all day signs with the same day number (red rectangle), here day number 1 (red circle), were used for a shortened representation of the 260-day count, in this case the 20 x 13 count. This short count occurs regularly in one form or another in the ancient Mexican manuscripts.

If the 240 dots of the intermediate days are omitted, the 20 day signs remain, each representing a series of 13 day numbers (figure 3.22). This is the short 260-day count that appears in various ways in some of the pre-Hispanic manuscripts. These are the same 20 day signs as shown in column 1 of figure 3.21 forming the basis of the 20 x 13-day counts as they appear in different variants in the ancient pre-Hispanic Mexican manuscripts.

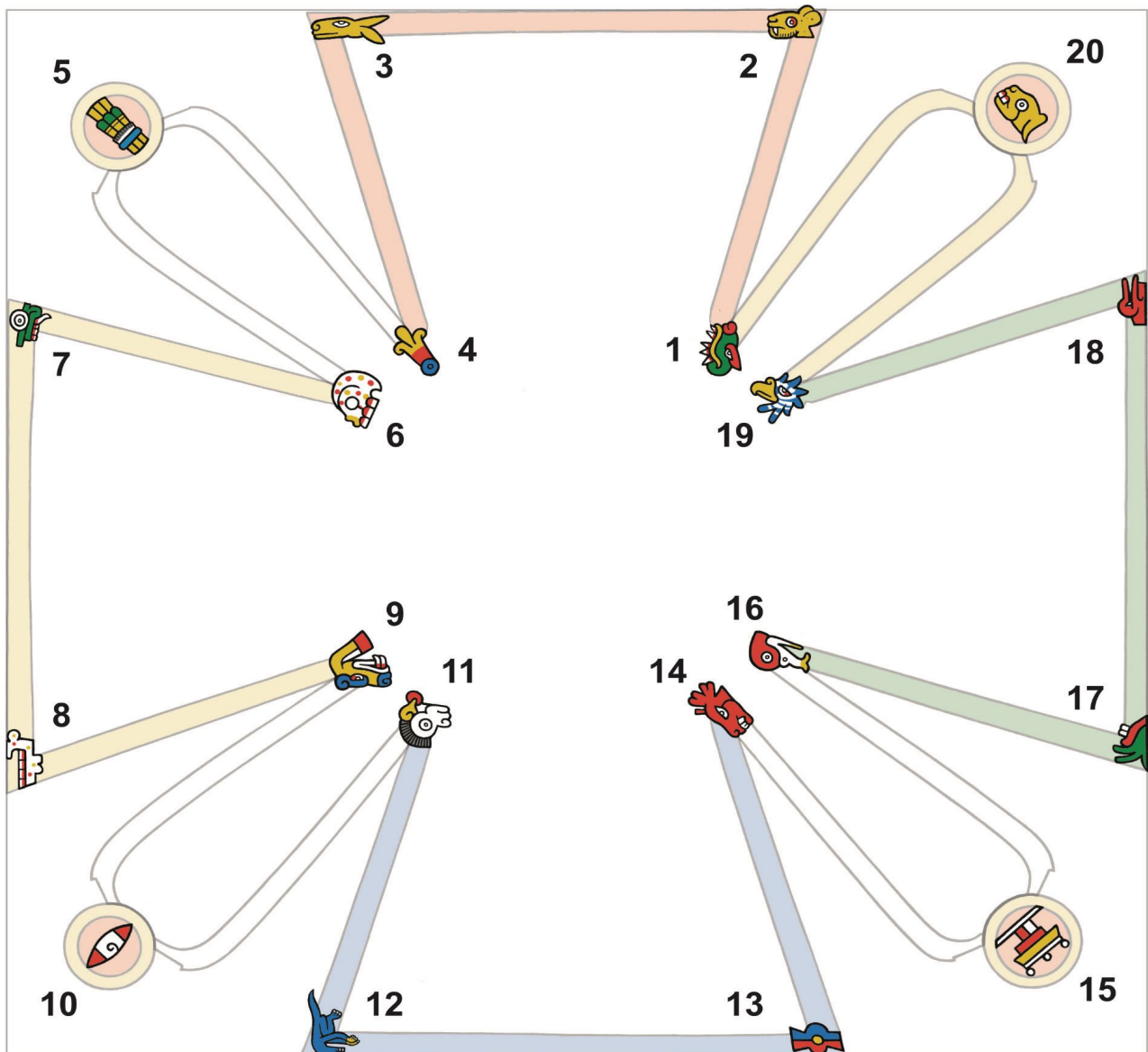


Figure 3.22 - Short 260-day (20 x 13) count constructed from the sequence of 20 day signs in the 4 trapezoids, the 4 arches, and the 4 year bearers.

In the period in which these manuscripts were made and used, the trained readers, probably especially the priest-scribes, knew even without the 12 intermediate dots that an short 260-day count was meant here in the form of 20 x 13 days. This was obvious to them because of the specific order of the displayed 20 day signs.

A nice and very creative example of using a short 260-day count can be seen on page 56 of the Codex Borgia (figure 3.23). Here, the same first day signs of the 20 series of 13 days from column 1 in figure 3.21 are shown in two columns to the left and right of the "life and death" scene. The count starts at the bottom right with the day name '1 crocodile' and goes up in a zigzag pattern until the last day name '1 rabbit' is reached at the top left. There are always 12 days present horizontally and diagonally upwards between two day signs, of which at the top and bottom only the first and the last series are shown in the form of 12 red dots. After that, the counting starts again with the day name '1 crocodile' and can go on indefinitely. Each circulation is 260 days over and over again. In fact, this is the same principle as the full count in figures 3.13 and 3.21, assuming the reader knows that there must always be 12 dots between the day signs. A typical example of an short 20 x 13-day count.



Figure 3.23 - Example of an short 260-day count on page 56 of the Codex Borgia with the 20-day signs of figure 3.21 displayed in a zigzag pattern. As a guide to the reader, only 12 red dots at the top and bottom are shown as the intervening 12 days.

Although in principle any column of day signs from the 20 series of 13 days can be used, the count usually starts with the day '1 crocodile' (*cipactli* or *imix*). In figures 3.15 and 3.21, all day names with the same day number are used for this, in this case day number 1. However, the basis is and remains the counting of series of 13 days using a number of fixed units (4, 5, 10, 20). We find this principle in the 4 x 65, 5 x 52, 10 x 26 and 20 x 13 day counts where the number 13 is the common factor. In this discussion I will limit myself to the short and long 5 x 52-day count, the 4 x 65-day count and the 52-year count that the creator of this beautiful scene on page 1, which occurs in the Codex Fejérváry-Mayer, on a truly sublime way has integrated into a logical and harmonious whole.

3.6.3 The long 5 x 52-day count

Because of the way the four columns of 5 day signs are grouped between each arch and trapezium (figure 3.24), the day signs can be counted as 5 x 52 days. This 5 x 52-day count is very common in the Maya codices Dresden and Madrid with the same groups, but of course with the Maya day signs. In these codices, only 1 of the 4 groups is used for this 5 x 52-day count. The principle of the count is always the same there too, but the group of day signs is always different (see figure 3.35). I call this the long 5 x 52 day count because it uses all 20 unique day signs. This in contrast to the short 5 x 52 day count in which only 5 of the 20 day signs are used.

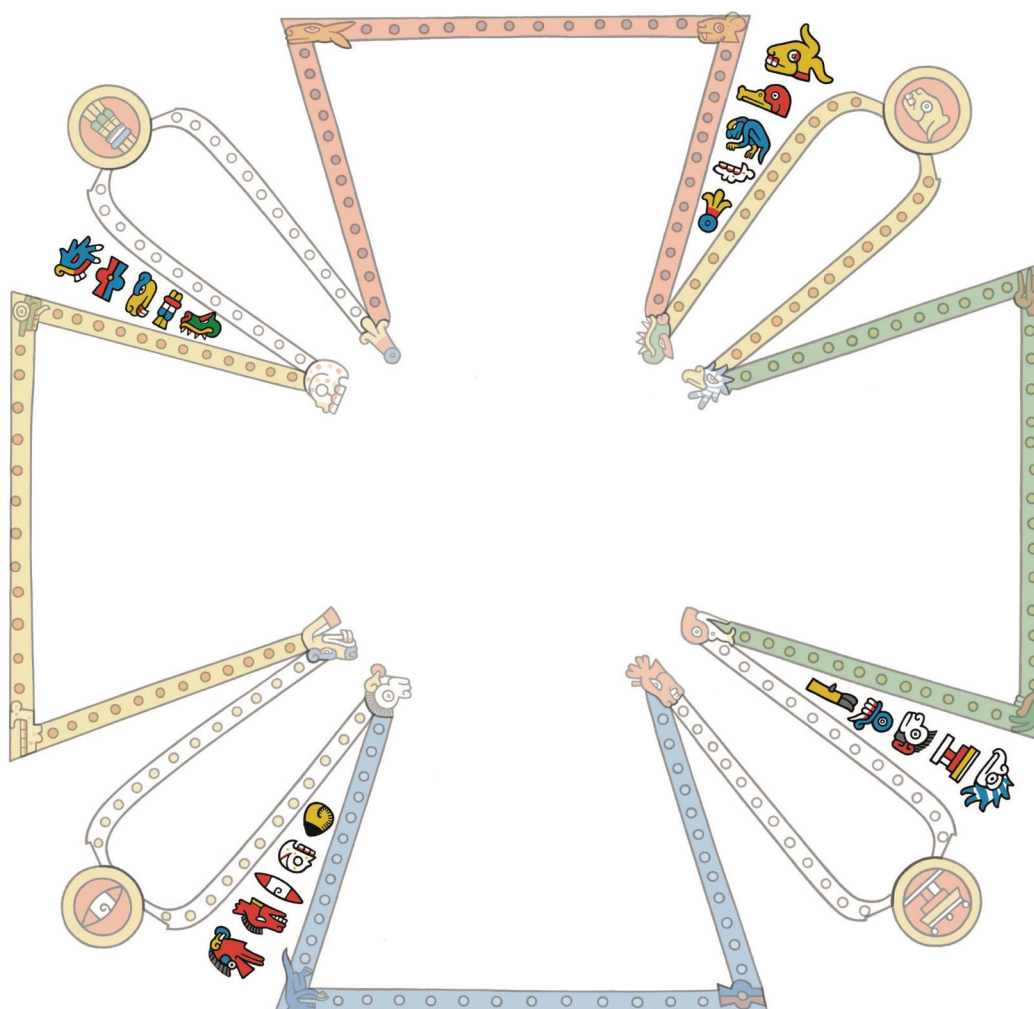


Figure 3.24 - The distribution of the 4 groups of 5 day signs that collectively represent the long 5 x 52-day count in the counterclockwise reading direction.

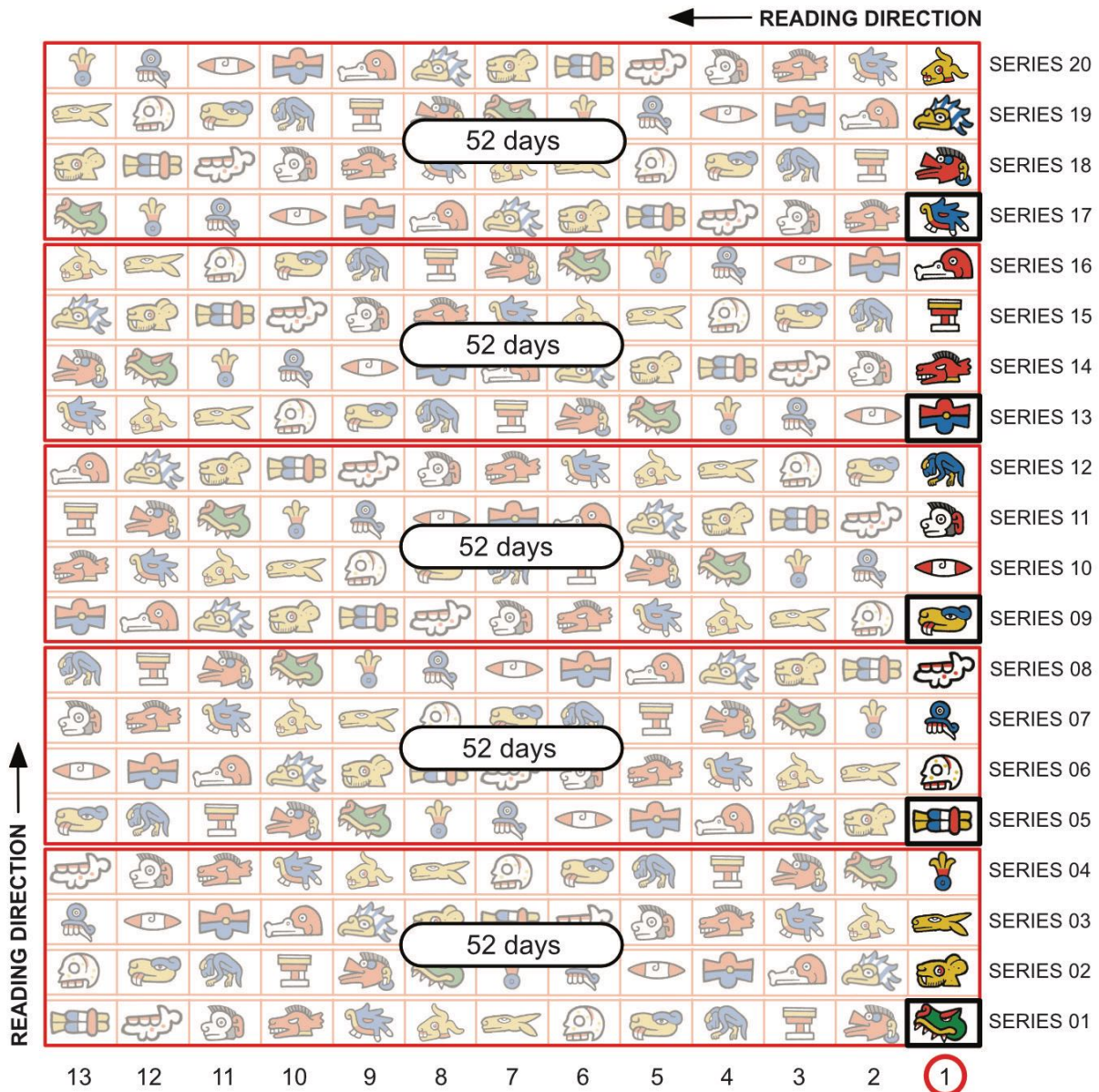


Figure 3.25 - Principle of the 5 x 52-day count.

The principle of the long 52-day count is based on dividing the 260 days into 5 groups of 4 series of 13 days each, i.e. 5 groups of 52 days (figure 3.25). Also this count, and also the first group of 4 series of 13 days, starts again with the day name '1 crocodile' (bottom right in figure 3.25). After 4 series of 13 days, the second group of 4 series of 13 days starts with the day name '1 reed'. Then from bottom to top follow the groups starting with '1 snake', '1 movement' and finally the fifth and last group of 4 series of 13 days starting with the day name '1 water'. In figure 3.25, the 5 groups of 4 series of 13 days are indicated with a red box and the 5 starting days of the groups of 4 series of 13-days with a black box.

In fact, for this 5 x 52-day count it would suffice to show only the black-boxed starting days of the 5 groups of 52 days. This is the short 5 x 52 day count. But on page 1 of the Codex Fejérváry-Mayer, the very clever creator has displayed all the day names from column 1 of figure 3.25, so that this notation can also be read as a long 5 x 52-day count, in fact 5 x 4 series of 13 days. The groups of day signs can therefore be read both vertically (short count per column, see also figure 3.34) and horizontally circular (long count over 4 columns; see figures 3.24 and 3.26). Both counts will be explained in more detail below.

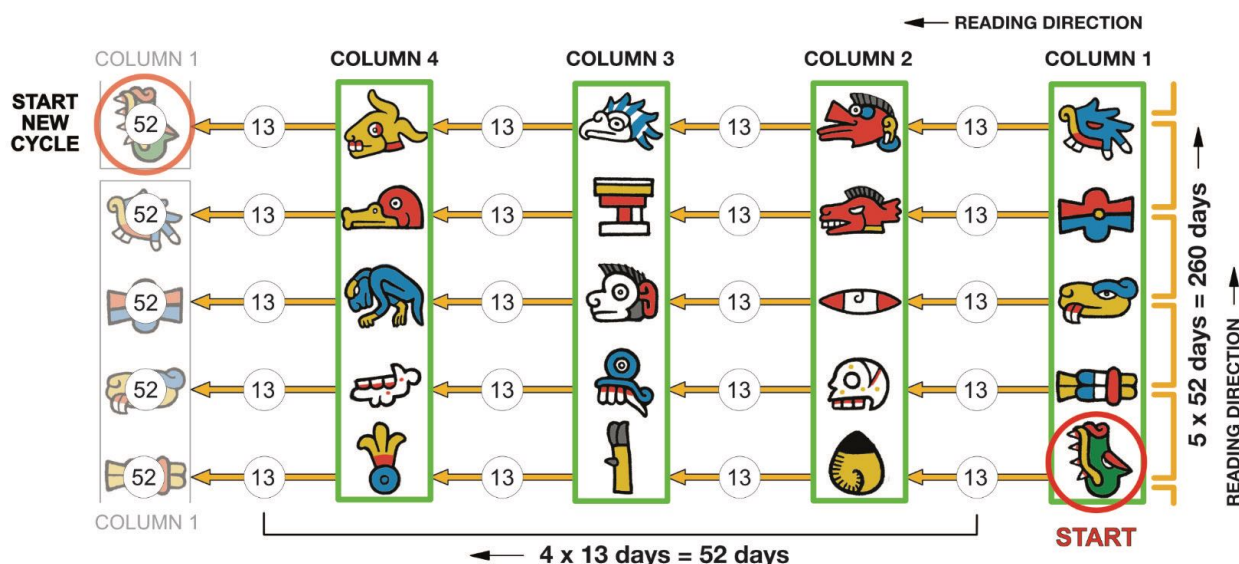


Figure 3.26 - Diagram of the basic principle of the short (vertical green boxes described below, see also figure 3.34) and long 5 x 52 days (horizontal yellow arrows) count.

In the diagram of figure 3.26, both the short and the long count of the 5 x 52 days are displayed. The short count consists of the 5 day signs of one of the columns 1-4 (vertical green frames) that each can represent a 5 x 52-day count separately. As we will see, all 4 columns also occur separately in the old Mexican manuscripts (see figure 3.35).

The long 5 x 52-day count follows the fixed series of 13 day signs that are shown in the diagram in figure 3.26 as yellow horizontal arrows. So all the 1st day signs of the 13-day series are shown in this whereby horizontally 4 groups of 5 series of 13 days are created (figure 3.25). These 4 groups are present on page 1 of the Codex Fejérváry-Mayer in the Columns 1-4 (figures 3.24 and 3.27).

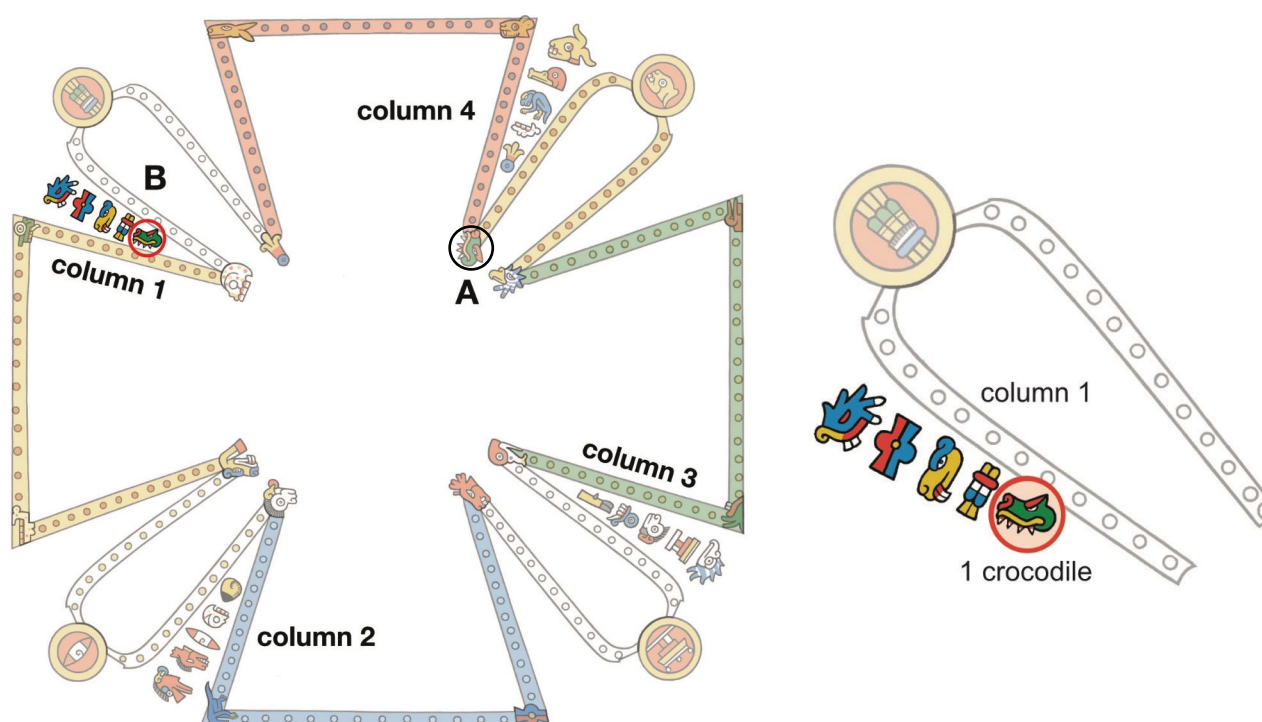


Figure 3.27 - Starting point '1 crocodile' (red circle and indicated by B) to the right of the yellow trapezium.

According to the fixed order of the day signs, the reading direction of this long 5 x 52-day counting is counterclockwise over the first day signs of each column from bottom up, whereby the 5 series of each 4 x 13 days are added together with each circulation, so 52 days. In column 1 it concerns the series 1, 5, 9, 13 and 17 (figure 3.25). The count on page 1 of the Codex Fejérváry-Mayer starts at the bottom of the column 1, left between the white arc and the yellow trapezium, as usual with the day name '1 crocodile' (see figure 3.27 point B).

We now know that these 4 groups of 5 day signs are the first day signs of the 20-day series (figures 3.21 and 3.25) and that each of these 20 day signs represents a period of 13 days. With these 4 groups of 5 day signs, several forms of counting are possible in addition to the 5 x 52-day count, such as the 4 x 65-day count (see below 3.6.5).

It is also remarkable that this 5 x 52-day count starts with the day name '1 crocodile', but that this starting point is not at the same place as the starting point '1 crocodile' (figure 3.11) of the full 260-day count consisting of the 4 trapeziums and 4 arches together. The full 260-day count starts at the right foot of the red trapezium that, together with the left standing white arch, forms the first quarter of 65 days (point A in figure 3.27). However, the starting day '1 crocodile' of the 5 x 52-day count lies between the 1st and 2nd quarter of the full 260-day count, so to the right of the yellow trapezoid (point B in figure 3.27). Why this has been done so is unknown. Both are in the first quarter.

From the day name '1 crocodile' (B in figure 3.27), the count turns counterclockwise to the lower day sign in the second column (figure 3.28). This is the day sign jaguar and is again the first of the next series of 13 days with a day name '1 jaguar'. Here we see a remarkable piece of creativity of the creator, because instead of the usual head of the jaguar, he or she has only displayed the ear of the jaguar because of the limited space. We come across this ear more often in images elsewhere in this codex. Smart and creative solved.

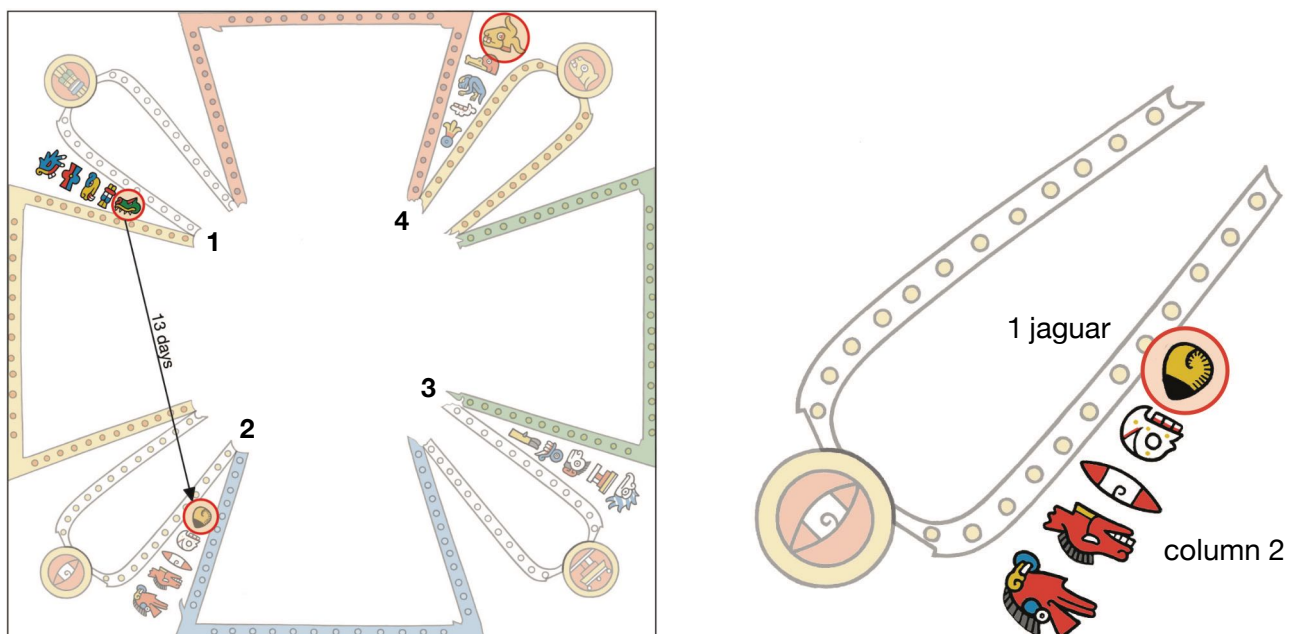


Figure 3.28 - The count runs from '1 crocodile' counterclockwise to the 2nd day name '1 jaguar'.

Then the count continues from the day name '1 jaguar' counterclockwise to the day sign deer, 13 days further. This is the lower day sign in the column of 5 day signs at the bottom right (see figure 3.29) with the day name '1 deer'. Because the usual day sign of the deer head would not fit between this, the creative creator instead has drawn a deer leg that does fit between it. We will meet this elsewhere in this codex as a replacement for day sign deer.

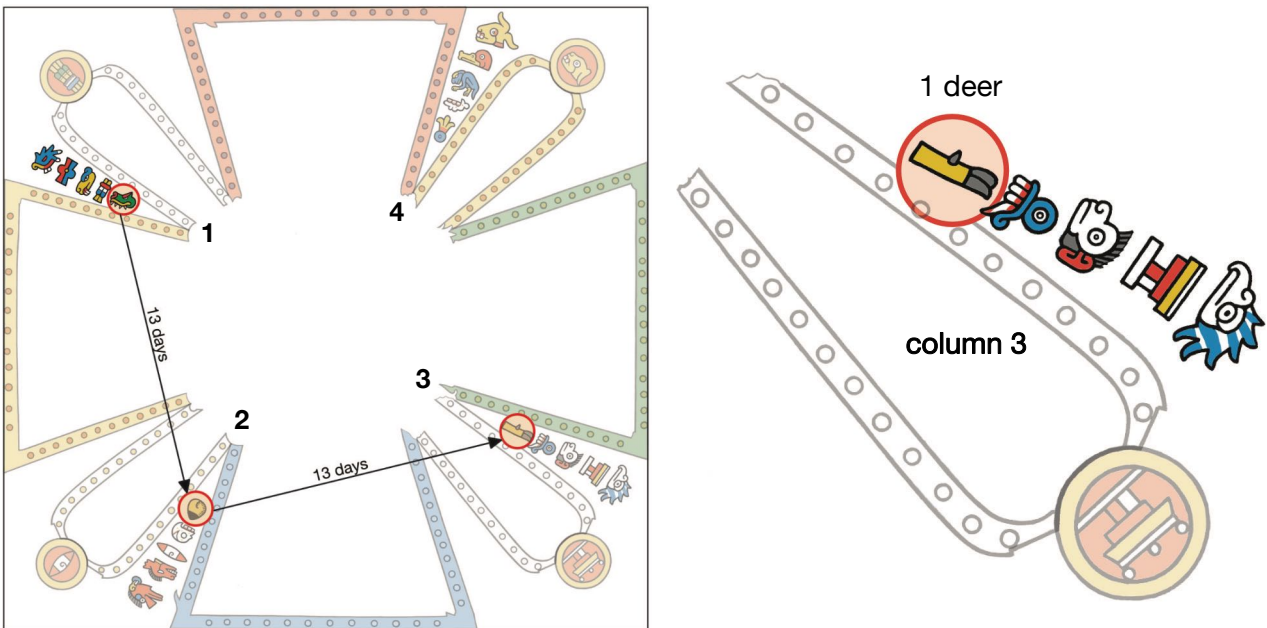


Figure 3.29 - The count will continue from day name '1 jaguar' to day name '1 deer' in column 3.

After that, the count goes from the day sign deer in column 3 to the day sign flower, the lower day sign in the 4th and last column of the group, right next to the red trapezium at the top (see figure 3.30).

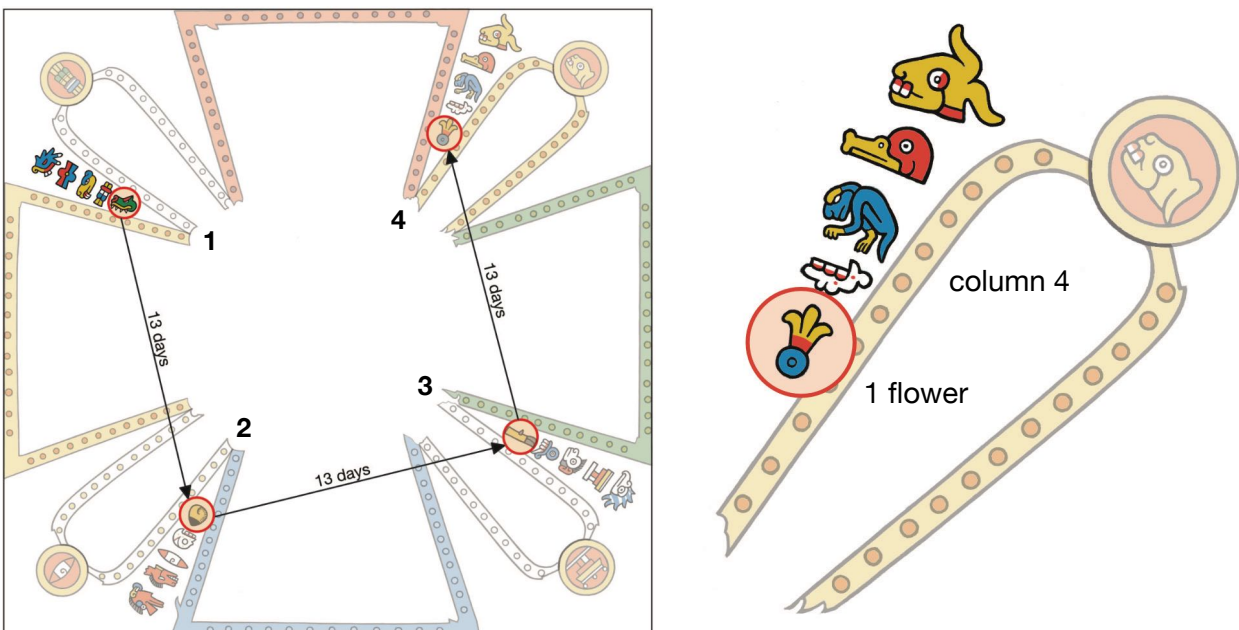


Figure 3.30 - From '1 deer' the count is going to the 4th day name '1 flower' in column 4.

To complete the first circulation of 4 x 13 days, the count of the day sign will continue to the first column of 5 day signs at the top left where the count started in day sign crocodile. But this time to the day sign reed, the second day sign in the first column counted from the lower and first day sign crocodile (see figure 3.27 on the right) with the day name '1 reed' (figure 3.31). There is now one complete circulation of $4 \times 13 = 52$ days completed.

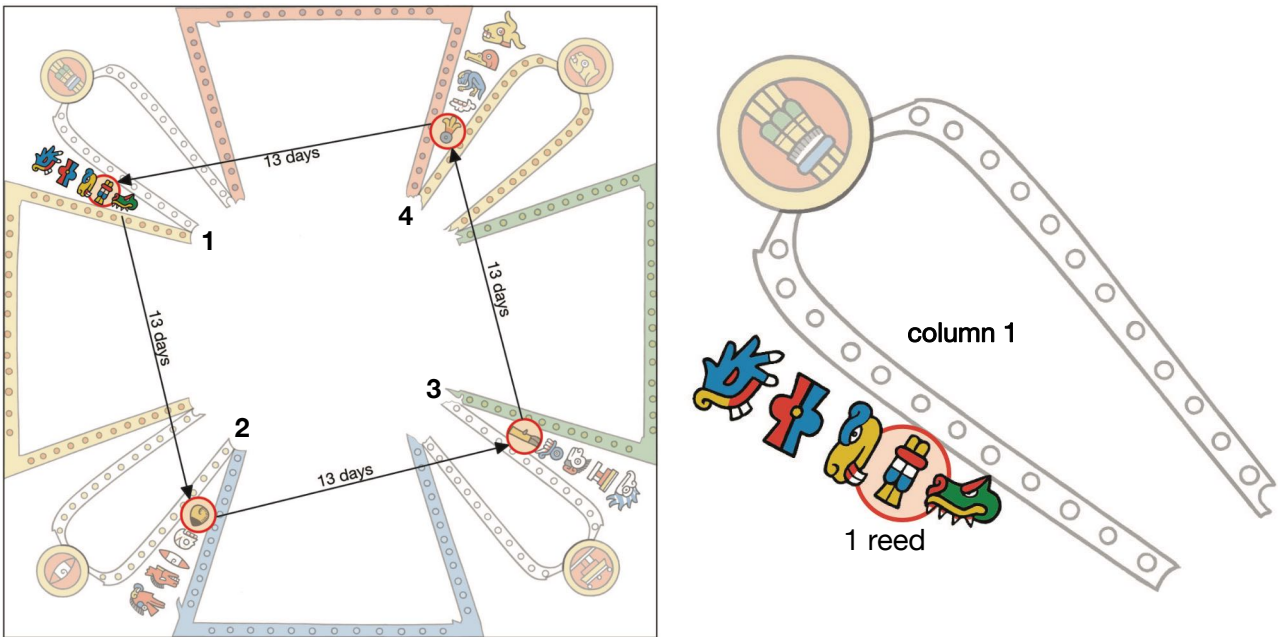


Figure 3.31 - From the day name '1 flower', the count is going back to the 1st column, but now to the day sign reed, the 2nd day sign from the 1st column with day name '1 reed'. There is now 1 full circulation of 52 days (4 x 13 days) completed.

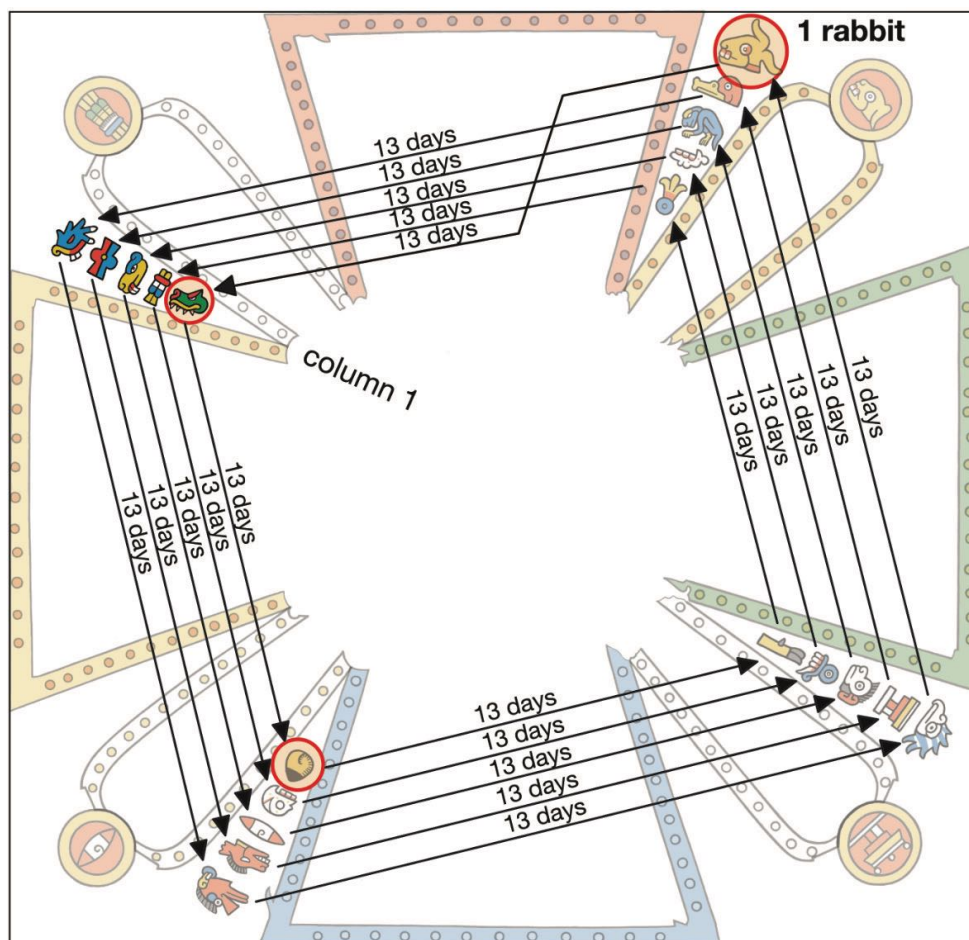


Figure 3.32 - The last step in this count goes from the day name '1 rabbit' at the top right back to the starting point '1 crocodile' in the 1st column. This makes the full count of 5 circulations of 52 days to be completed.

In this way, the count continues counterclockwise to the last day sign rabbit, the upper day sign in the 4th column at the top right. From the day sign rabbit with the day name '1 rabbit', the count continues to the day sign crocodile in column 1 between the yellow trapezium and the white arch at the top left, the starting point of the count (figures 3.27 and 3.32). This makes a full circulation of $5 \times 52 = 260$ days completed and the cycle starts again in its eternal rhythm.

3.6.4 The short 5 x 52-day count

As previously mentioned, the 4 columns with 5 day signs each in the armpits between trapezium and arch could also be used as a short form of a 5 x 52 day count (figure 3.33). In this case they were not counted in a circulation in the horizontal plane, but vertically as a separate column. When we count the 5 day signs of a column vertically, we see that the distance between the 5 day signs is again $(4 \times 13 =) 52$ days (figure 3.33). There are five gaps with a total of $5 \times 52 = 260$ days. In fact, each column is a 260-day count on its own. This principle is shown in a simple diagram in figure 3.34.

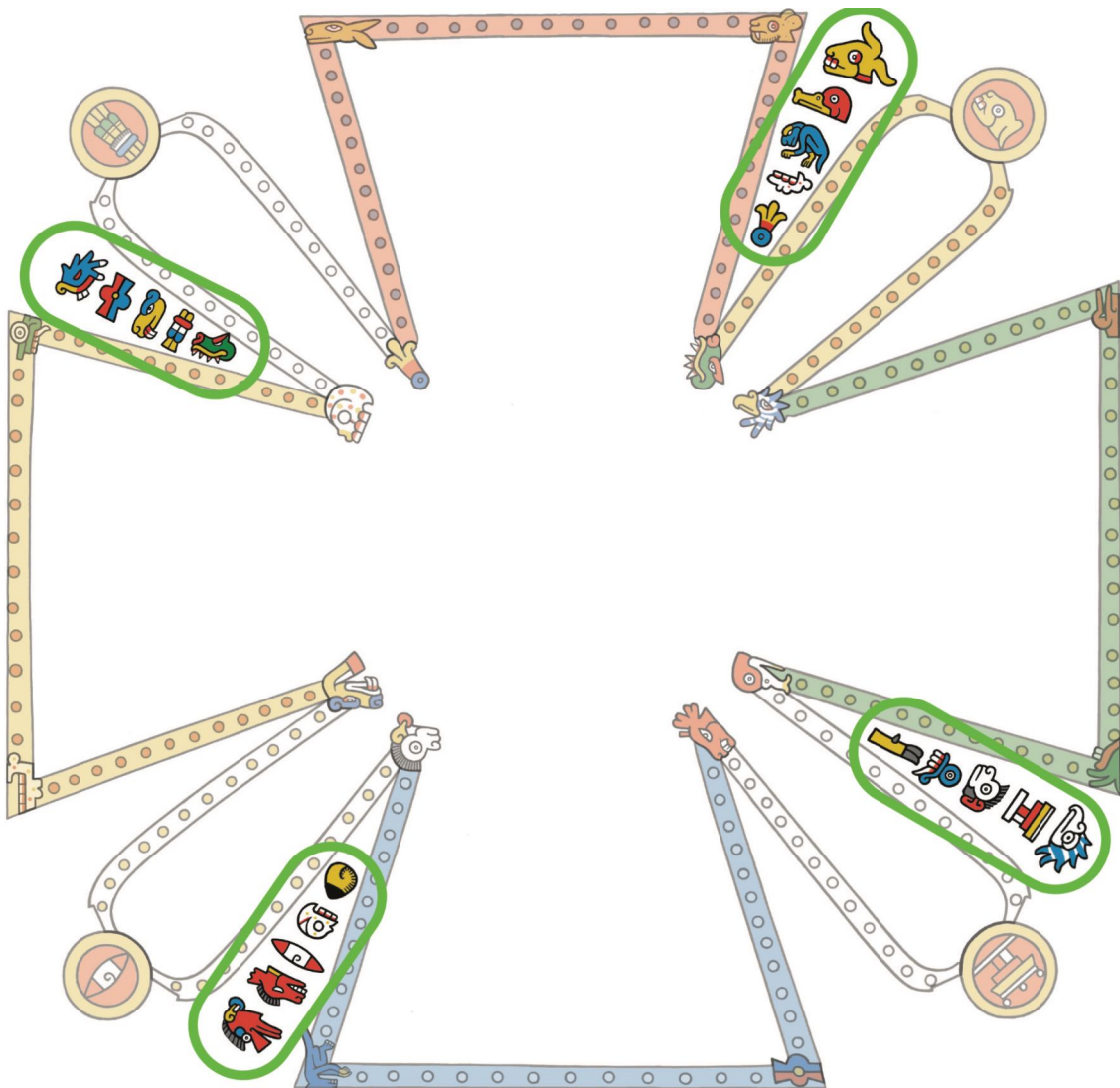


Figure 3.33 - The 4 green-framed columns with 5 day signs each placed in the armpits of the trapezium and arch, each one with a total of 260 days

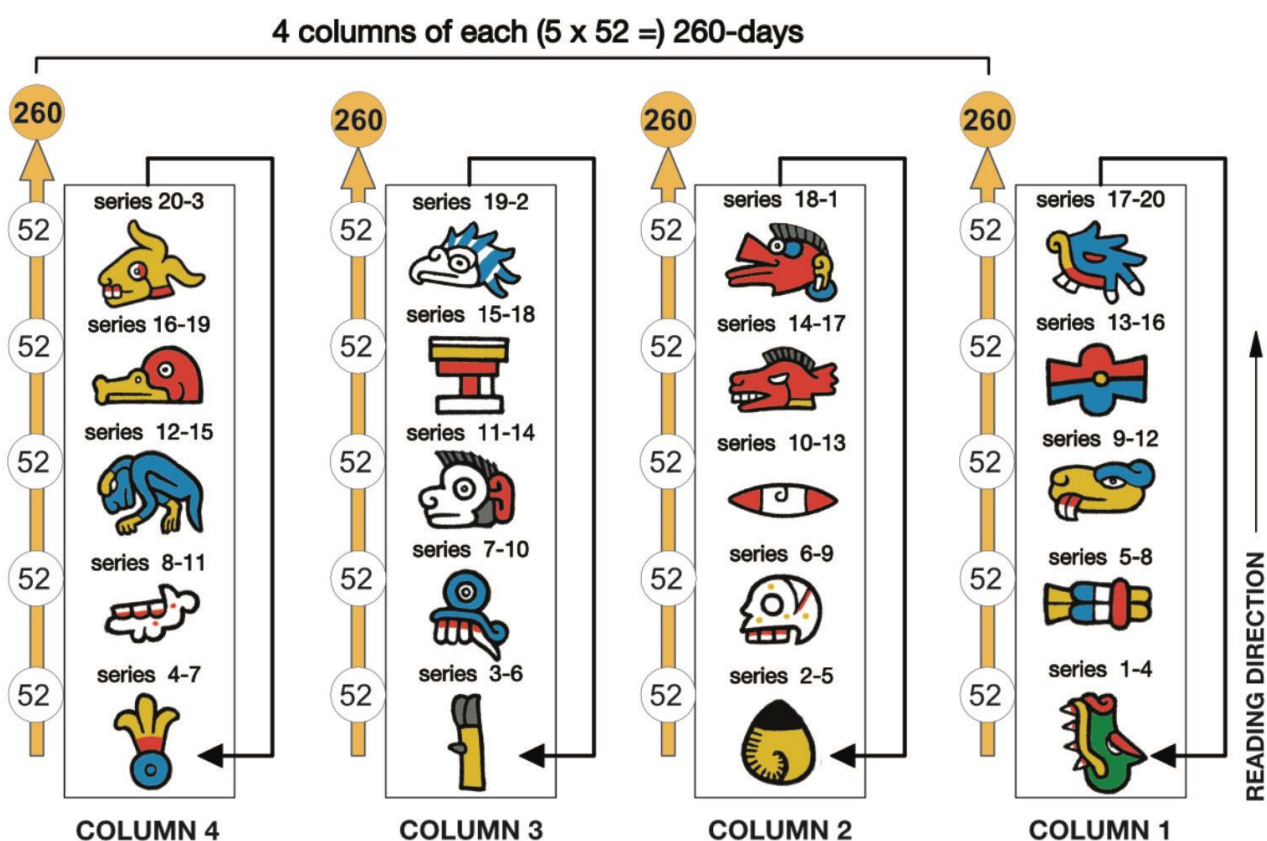


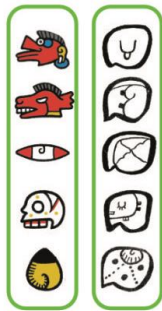
Figure 3.34 - Diagram of the short 5 x 52 day count in 4 columns of 5 day signs each.

Remarkable is the large number of short 5 x 52-day counts in the codices Madrid and Dresden. In these codices exactly the same 4 groups are used as those on page 1 of the Codex Fejérváry-Mayer, but of course with the Maya day signs (figure 3.35). In the codices Madrid and Dresden, however, the 4 groups are not shown together, but always only 1 of these 4 groups. So typically depicted as a highly simplified short 260-day count using the short 5 x 52-day count method. Sometimes a different order of the 5 day signs was also chosen within a group.

An analysis of the codices Madrid and Dresden shows that of the 5 x 52-days counts present, the group from column 4 (from bottom to top: flower, grass, lizard, vulture and rabbit at the bottom right of figure 3.35) is represented the most. From other applications of this 5 x 52-days count in the codices Borgia, Cospi, Laud and Vaticanus B, there appears to be a certain relationship between a group of 5 day signs, a deity, a cosmic tree and sometimes also a temple, bird or cardinal direction. The accompanying deities and trees were called the "4 Fathers of the Land" and the "4 bearers of heaven" and are considered the representatives of the four corners or sides of the world. The latter corresponds to a limited extent with what we now call the main directions.

In the codices from the Borgia group, this method of counting 5 x 52 days with the same 4 groups of 5 day signs, except on pages 1 and 33-34 of the Codex Fejérváry-Mayer, also occurs in the codices Laud (10 , 12, 14, 16), Borgia (49-52), Cospi (12-13) and Vaticanus B (17-18, 24-27).

COLUMN 2



M 18a, 19a, 20a, 23b, 25b, 27b, 28d, 39c, 42c, 43b, 43c, 45c, 46a, 58b, 64a, 83c, 84a, 93a, 95a, 99b, 108c, 109c

D 1b, 1c, 4b, 12b, 22c, 29b

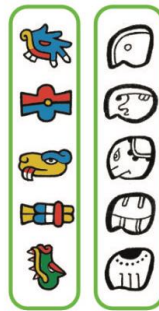


M 21c, 29b, 29d, 48a, 53c, (54a ?), 84c, 85a, 87c, 89b, 89c, 97a, 97c, 98c, 102d, 108b

D 4c, 5b, 6c, 8b, 10b, 20b, 22b

COLUMN 3

COLUMN 1



M 20c, 22c, 24a, 24d, 31a, 40b, 40c, 52a, 79b, 80c, 88b, 89c, 94d, 97b, 99c, 101d1, 107a, 110b

D 4a, (13a ?), 21c, 35b



M 15a, 16a, 17a, 19b, 23c, 25a, 25d, 26a, 27c, 29c, 30a, 31b, 38b, 49c, 52b, (59a ?), 61b, 63a, 63b, (63c ?), 79c, 80b, 81c, 82c, 83b, 90a, 90b, 91b, 91c, 92b, 93c, 95d, 96b, 96c, 99d, 100d, 101a, 101c, 101d2, 102c, 102d, 111c

D 2c, 6b, 8c, 10a, 13b, 14a, 15a, 16a, 17b, 17c, 18c, 19a, 19b, 19c, 40c

COLUMN 4

Figure 3.35 - Overview of the use of the 4 columns of 5 day signs as a method for the count of 5 x 52 days in the codices Madrid (**M**) and Dresden (**D**).

A beautiful, but complex, example of the long 5 x 52-days count can be seen on pages 49-52 of the Codex Borgia (see figure 3.36). In this example of the Codex Borgia, the emphasis is mainly on the 4 corners or directions of the world and the associated cosmic trees, deities, sacrifices, birds and year bearers. Each page shows a corner or side of the world. The pages are read from right to left. Each page shows at the bottom a group of 5 day signs. I will come back to the content later.

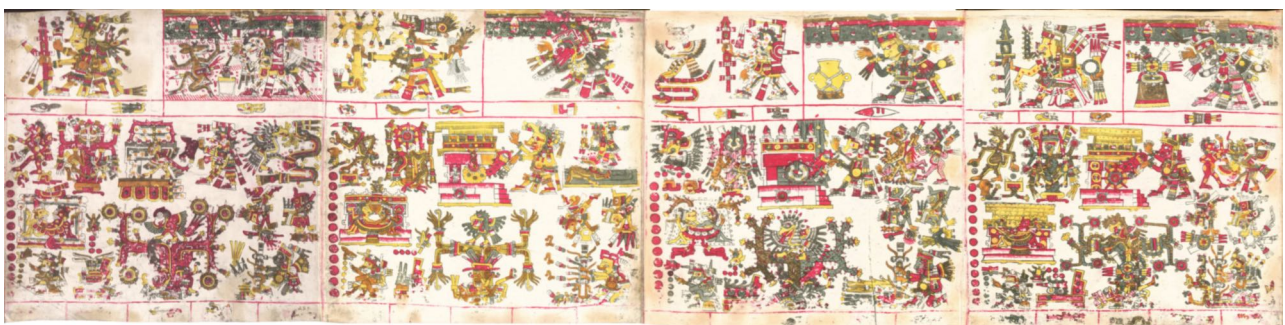


Figure 3.36 - Artistically beautifully crafted and painted example of a 4 x 65 day count with the 4 corners of the world consisting of cosmic trees, deities, sacrifices, birds and year bearers.

3.6.5 The 4 x 65-day count

The creator of the scene on page 1 of the Codex Fejérváry-Mayer also included a 4 x 65 days count within the full 260-day count. This count is enclosed in the structure of the frame of the scene shown on page 1 as a division in four, made up of four combinations of each a trapezium and an arch, which together represent a stylized flower.

The creative creator has visualized here the four groups of 65 days (the quarters) that were seen in the old Mexican world of thought and life, as the 4 sides of the world where the bearers of heaven stand and what we now call the 4 main directions. Each quarter is associated with two deities, a cosmic tree, an offering, an year bearer and a direction. This division in four is a commonly used pattern in the ancient Mexican manuscripts. The basis for the count consists of the 4 first day signs of the 4 groups of 5 series of 13 days (4 quarters or 4 x 65 days) as shown in figures 3.37 and 3.38. These are always the same 4 day signs consisting of crocodile, death, monkey and vulture. The order of the 4 day signs shows that the reading direction is counterclockwise.

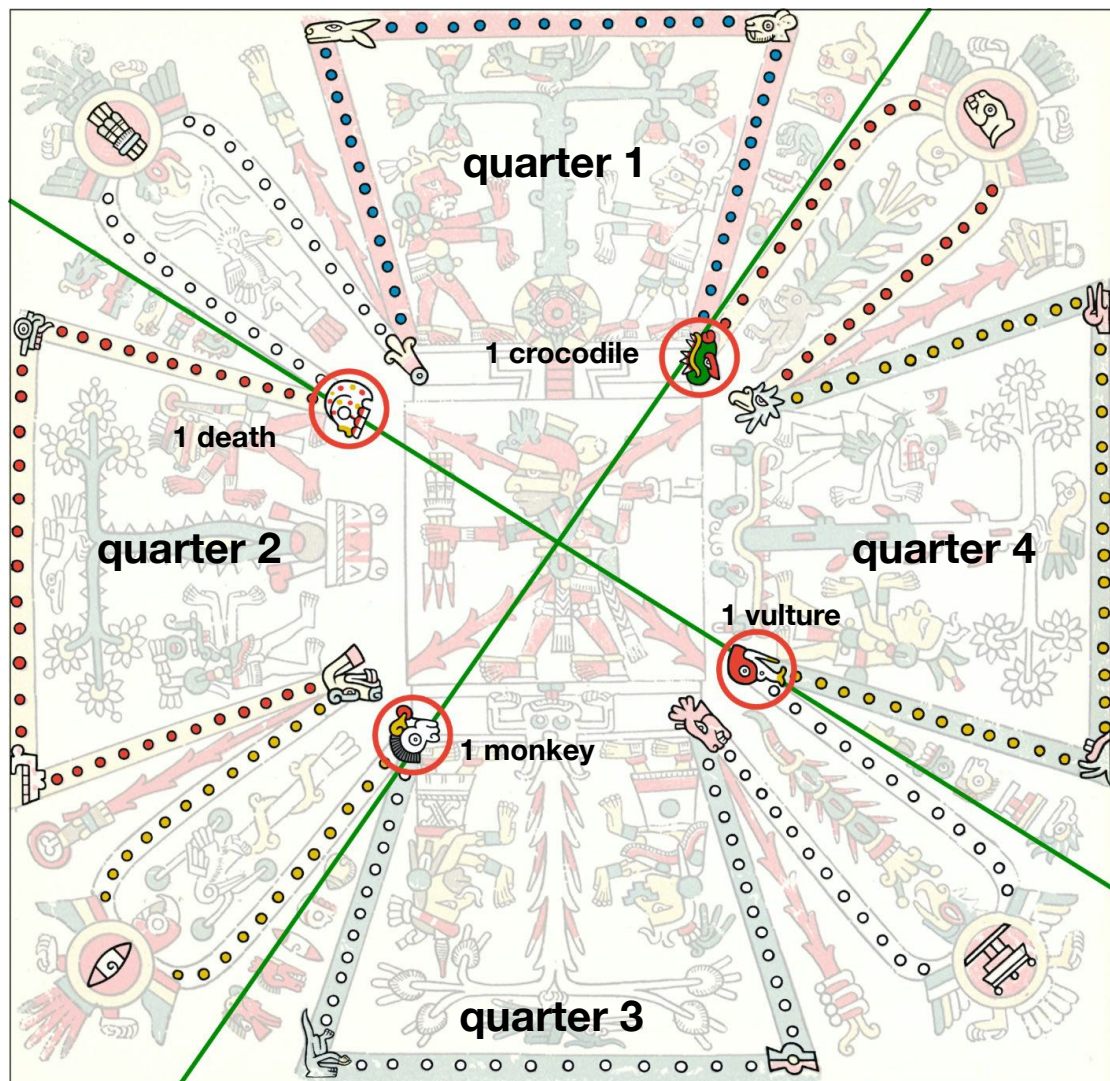


Figure 3.37 - The 4 red-circled day signs on the right foot of the 4 trapeziums serve as the basis for the short 4 x 65-day count and divide the 260 days into quarters.

The actual basis of this 4 x 65 days count is formed by 4 groups of 5 day signs (figure 3.38). For the 4 x 65 days count, the 20 series of 13 day are divided into 4 groups of 65 days (red frames figure 3.38), the 4 quarters or the 4 corners of the old Mexican world. Only the first day sign of each of these 4 groups is displayed. These are the same 4 leading day signs on the right foot of the 4 trapezoids, namely the circled in red '1 crocodile' (*cipactli/imix*), '1 dead' (*miquiztli/cimi*), '1 monkey' (*ozomatli/chuen*) and '1 vulture' (*cozcacuauhtli/cib*) in figure 3.37 (see in column 1 also the black-outlined day signs in figure 3.38). The advantage is that this saved a lot of space in the manuscript because the intermediate 64 day signs are omitted until the next day name.

This count starts from the day name '1 crocodile' at the top right (figure 3.37) and runs through the series 1, 2, 3, 4 and 5 to arrive at series 6 starting with the day name '1 dead'. This involved 5 complete series of 13 days with a total of 65 days.

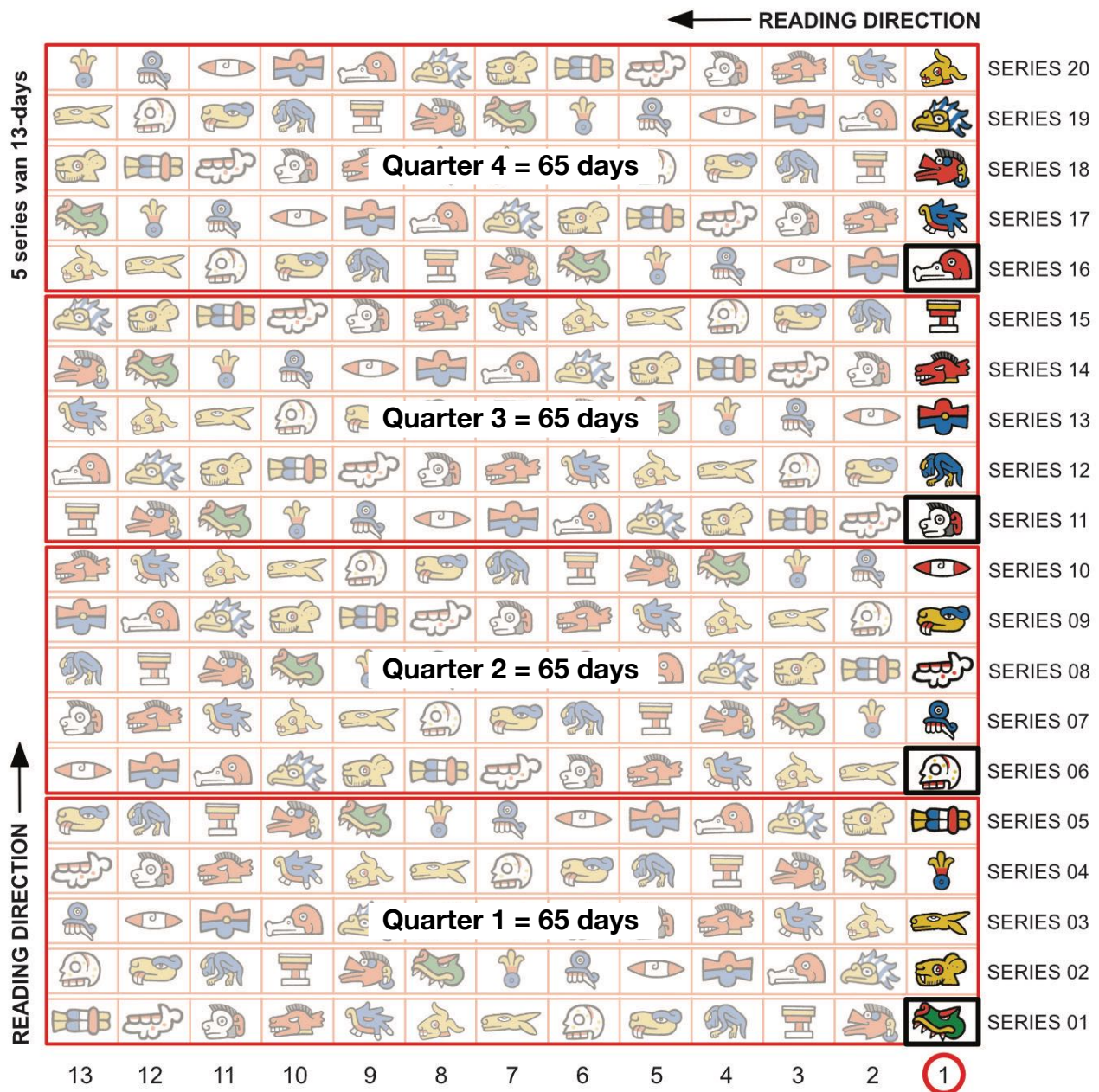


Figure 3.38 - The full 260-day count with in column 1 the 1st day signs (black frames) of the 20 series of 13 days divided into 4 groups of 5 series of 13 days (red frames), using only the 1st of each group of 5 series of day signs for the 4 x 65-day count.

From the day name '1 death', again in the fixed order of the used day signs, another 5 series of 13-days are run through, so another 65 days. And so on up to the 260th and also last day name '13 flower' (last day sign far left of series 20). Then the count starts again with the day name '1 crocodile'.

This combination of 4-day signs has been used in a number of manuscripts as a 4 x 65-day count. Examples of this are present, for example, in the codices Laud 1, Madrid 13-18, 50b, 51b, 92a-93a, 101d, 110b and the Dresden 12c (in the latter the 4 day signs are in a different order). Figure 3.39 shows the example of the Aztec and Maya notation.

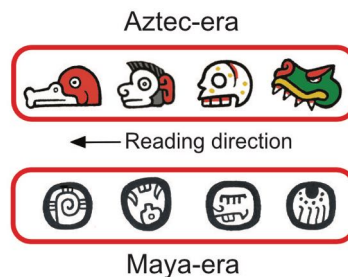


Figure 3.39 - The 4 day signs used in the 4 x 65 day count.

The codices Laud 1 and Madrid 50b also include 4 directions. It is remarkable that this combination of 4 day signs only occurs in the codices Fejérváry-Mayer, Laud, Madrid and Dresden, which further underlines the influence of the Maya customs in the Codex Fejérváry-Mayer as well as the mixed use of both Aztec and Maya system of numbering does. According to Edmonson (1988: 8) this combination of 4 day signs is also year bearer type I of the old Mexican era.

3.6.6 The 52-year count

In addition to the counts of 260 days, 4 x 65 days and 5 x 52 days, the creator of the image on page 1 of the Codex Fejérváry-Mayer also processed a fourth count in a very creative and clever way. This concerns the 52-year count, also called the 'calendar round'. In this count, the aforementioned four day signs of the year bearers, which are depicted in the circles on the back of birds on top of the arches in the four corners, play a leading role (figure 3.40).

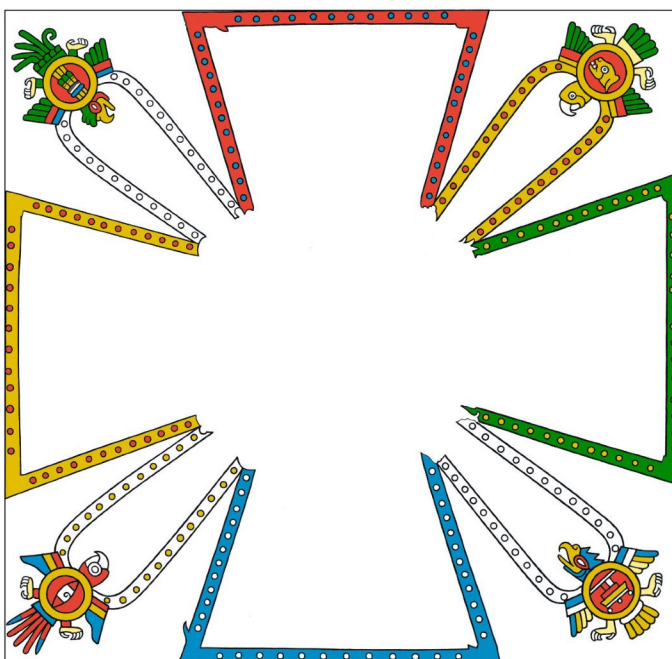
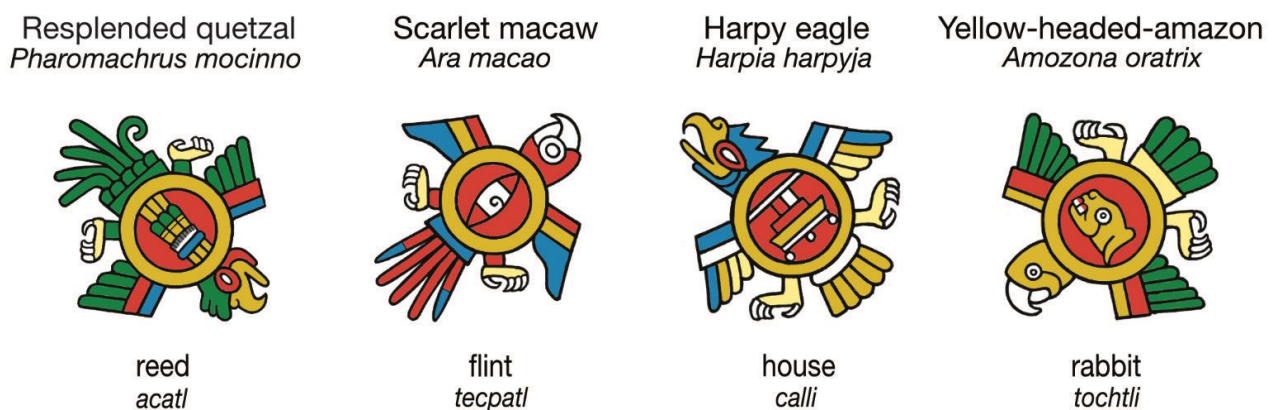


Figure 3.40 - Placement of the 4 year bearers.



Figure 3.41 - The legendary leader and folk hero '8 Deer' with a round shield with a blue border on the left.

Iconographically, these double circles represent the shields that belong to the armor of warriors. Chapter 2 already discussed how accurately these double circles are drawn and painted. Such shields (see example in figure 3.41) are found throughout the ancient manuscripts, even very often in the Codex Zouche-Nuttall. On page 1 of the Codex Fejérváry-Mayer, however, the shields are carried by four species of birds that we regularly encounter in pre-Hispanic manuscripts. Presumably these are: the Quetzal (Resplendent quetzal, *Pharomachrus mocinno*), the Scarlet macaw (*Ara macao*), the Harpy eagle (*Harpia harpyja*) or the Strangled eagle (Crested Eagle, *Morphnus guianensis*) and possibly a Yellow-headed-amazon (*Amozona oratrix*) (see figure 3.42).



Picture 3.42 - The 4 birds flying with the 4 year bearers on their backs.

These year bearers carried by the 4 birds were used to give a unique name to each year of 365 solar days within a 52-year cycle, the so-called 'calendar round'. As a basis for this, 4 fixed day signs were used. On page 1 of the Codex Fejérváry-Mayer, these are the day signs reed, flint, house, and rabbit, a common series in ancient Mexican manuscripts. Incidentally, the 4 day signs have changed several times in the course of history. Edmonson (1988: 8) has identified 5 different types of which the year bearers of the Codex Fejérváry-Mayer belong to type III (figure 3.44). The order of the 4 day signs within this type III has also changed in the course of history.

Although the practical operation of these year bearers is relatively simple in itself, it must not have been an easy task to devise this system and to get it conclusive. The well-known numbering from 1 to 13 is also used as a basis, in addition to the 4 day signs mentioned, but in this case as the numbering for the years. The cycle of the 4 day signs as year bearers and the cycle of the 13 numbers as year numbers are intertwined into the cycle of 52 years. As a start of this 52-year count, in principle any of the four year bearers could be used in combination with any of the 13 day numbers. The year bearer was also the 1st day of the year.

Since in the scene on page 1 of the Codex Fejérváry-Mayer, all counts begin in the quarter of the red trapezium and the adjacent white arch to the left (figure 3.13) figure 3.43 started with the year name '1 reed' (top left). In the 260-day count, this is the 53rd day. From this point on, the next year bearer is always 365 solar days ahead. This means 28 series of 13 days + 1. It is not only the 1st day of the year but also the first day of the 52 year count (see figure 3.44). The underlying method for this combination of 4 day signs as year bearers (type III according to Edmonson 1988: 8; see figure 3.45) was characteristic of the Aztec and Mixtec. The elapsed year is given the name of the day sign in combination with the relevant year number. For the starting point '1 reed', the year name is also '1 reed', which is also the name of the relevant year bearer.

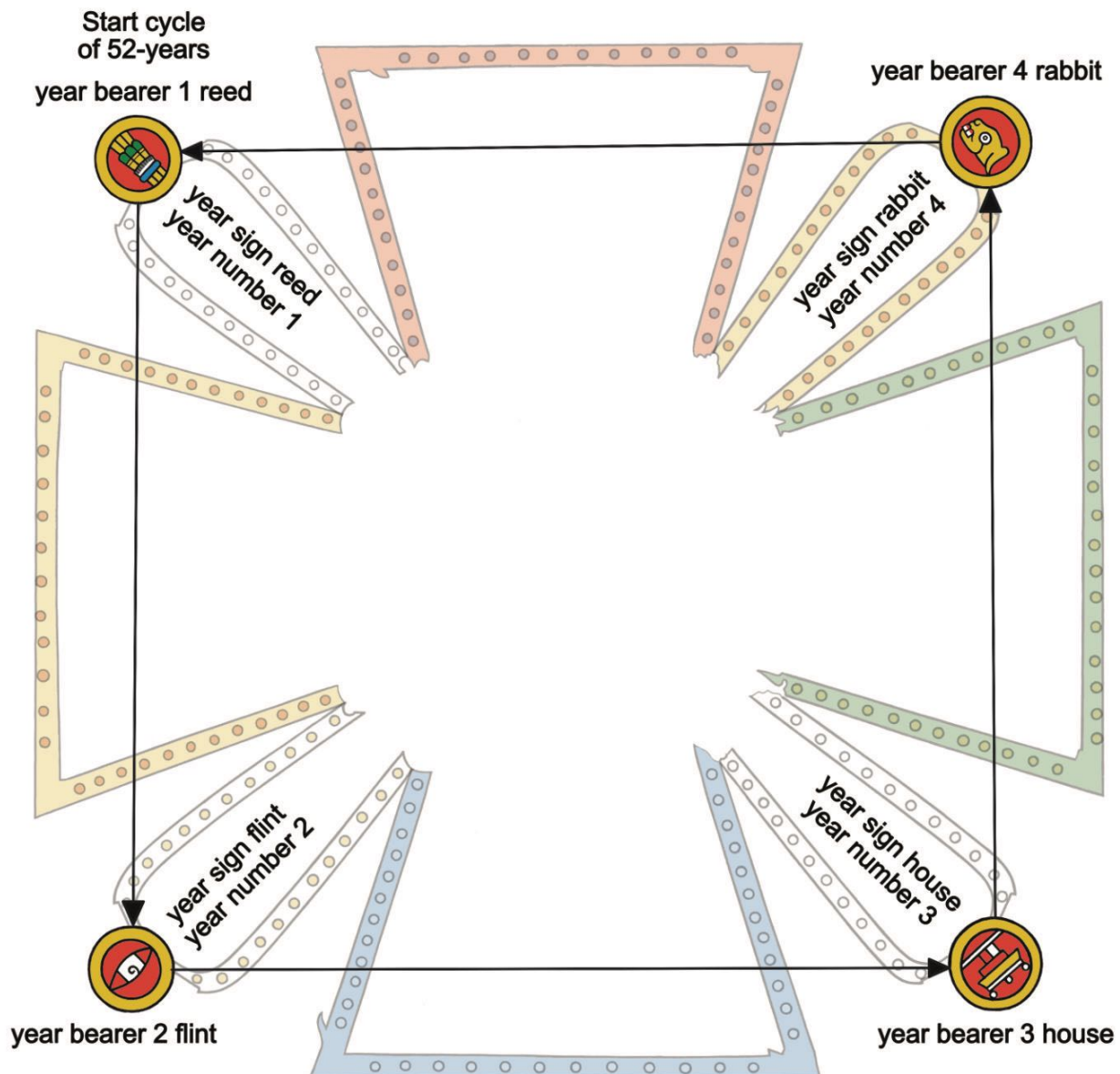


Figure 3.43 - Basic principle of how the 52-year count works using 4 day signs and 4 series of 13 day numbers. The reading direction is counterclockwise.

From the year bearer '1 reed' the count goes left in the reading direction, down to '2 flint' (bottom left), then to the right to '3 house' (bottom right), then up to '4 rabbit' (top right) and returns again to the year bearer reed at the top left. This completes the first round of the 4 year bearers (figure 3.43) and the second round begins. The start is again the day sign reed but now with day number 5, followed by the year bearers '6 flint', '7 house' and '8 rabbit', etc. The numbering in the first series continues until the end of this series (figure 3.44) with year bearer '13 reed'.

After reaching number 13 as year bearer '13 reed' on the far right of series 1 (figure 3.44), the count continues on the left in series 2 with '1 flint'. Thus, the count will continue until the end of series 4 at '13 rabbit'. So a total of 13 rounds of 4 year bearers take place until the year number 52 is reached which, with this combination of day signs as year bearers, will always be '13 rabbit'. This completes the 52-year cycle, or 'calendar round', and starts the next 52-year cycle all over again with year bearer and year name '1 reed'.

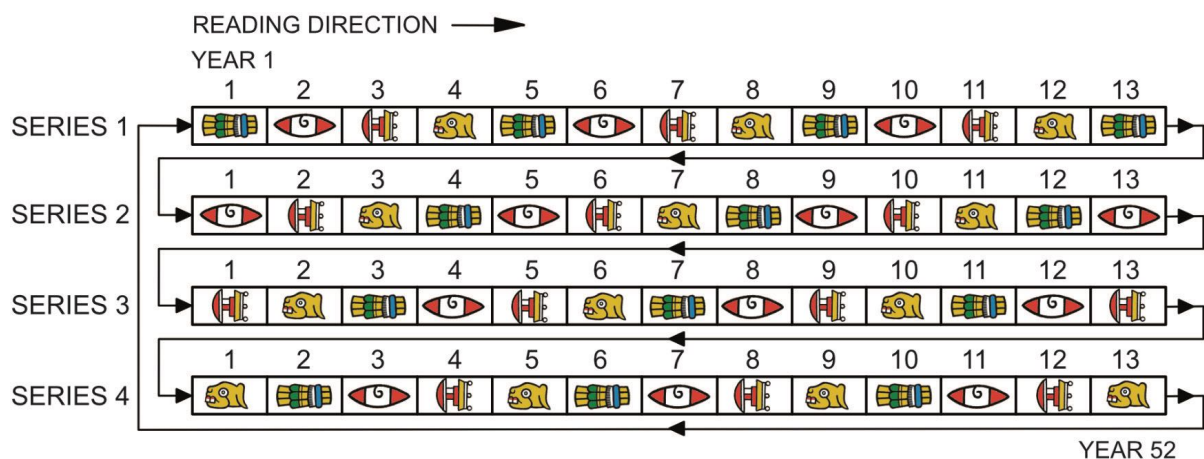


Figure 3.44 - Principle of counting 52 years using 4 day signs and 13 numbers. Although the day signs may be used in a different combination, the principle of counting remains the same.

At the end of the 52nd year, this 52-year cycle ended with a very grand celebration called the "New Fire" or "Joining or Binding of Years." All old fires were extinguished and relighted after a certain number of days, starting a new cycle of 52 years. The visibility of the Pleiades star group on that day played an essential role in this.

The same day signs of the year bearers reed, flint, house and rabbit are also used in the codices Borgia (49-53), Vaticanus B (19-22) and Dresden (25-28). In the Codex Madrid on pages 34-37 for these year bearers the series lizard, water, jaguar and rain (Maya day signs *kan*, *muluc*, *ix*, *cauac*) is used (see figure 3.45). In these 4 mentioned codices a direct relationship can also be seen between the year bearers and the spatial indications of directions which are represented by means of directional signs, deities, bearers of the heaven or a combination thereof.

classification according
to Rice 2007 pp. 31-32

classification according to Edmonson 1988 p. 8

Tikal calendar classic	classic type II group Maya					Maya-group Codex Dresden Codex Madrid
		wind <i>ik</i>	deer <i>manik</i>	tooth <i>eb</i>	earthquake <i>caban</i>	
Campeche calendar late classic	Puuc type III group Maya					Maya-group Codex Madrid Codex Dresden
		night <i>akbal</i>	star, Venus <i>lamat</i>	reed <i>ben</i>	knife <i>etz'nab</i>	
Mayapan calendar post classic	Mayapan type IV group Maya					Maya-group Codex Madrid
		maize <i>kan</i>	rain <i>muluc</i>	jaguar <i>ix</i>	storm <i>cauac</i>	
	type III group Aztec, Mixtec					Borgia-group Mixtec group
		house <i>calli</i>	rabbit <i>tochtli</i>	reed <i>acatl</i>	flint <i>tecpatl</i>	

nomenclature for the Maya day signs according to Stuart (2011: 141-143)

Figure 3.45 - Overview of the combinations of day signs used over time as year bearers as they are present in the pre-Hispanic manuscripts.

Edmonson (1988: 8) provides an overview of the combinations of the applied 4-day signs used as year bearers over time and their shift in time (Figure 3.45).

In some codici, such as the Zouche-Nuttall and the Vindobonensis Mexicanus I (Vienna), the year bearers are depicted in a very recognizable form, also called the A-O form. Some examples of this are given in figure 3.46. Sometimes they are shown in a full 52-year count as in the Codex Borbonicus. In the other manuscripts they can only be recognized by the grouping of the four characteristic signs of the day (figure 3.45) which serve as year bearers, as in the codices Madrid, Dresden and on page 1 of the Fejérváry-Mayer. An exception to this, however, is the Codex Borgia.

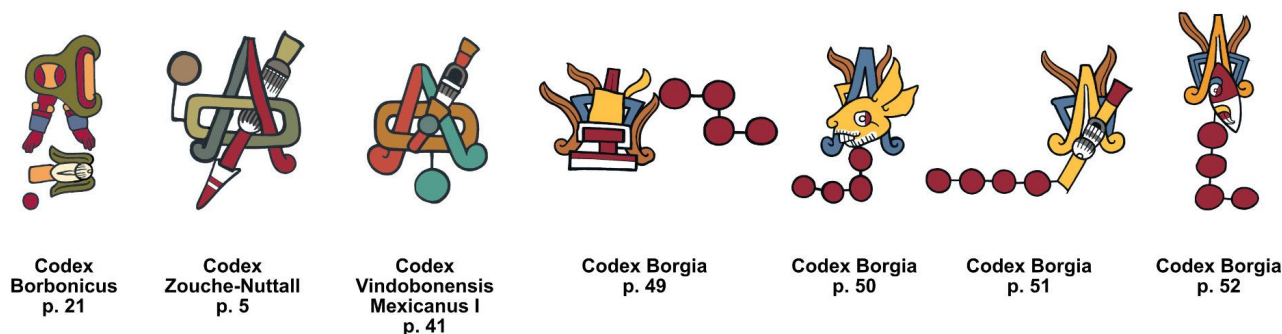


Figure 3.46 - Examples of the specific way in which year bearer naming has been applied in ancient Mexican manuscripts.

For it is remarkable that also in the Codex Borgia, as the only one of the manuscripts of the Borgia group, on pages 49-52 the A-O form is used in combination with the 4 signs of the year bearers (figure 3.46). These are the scenes with the 4 celestial bearers and the 4 deities of the directions. For further discussion, see 4.4.3.

3.7 Ritual of the Bacabs

The passage of the old and the coming of the new year in the 52-year cycle was celebrated locally by the Maya in ancient Yucatan. This was done in the form of a 4-year cycle of New Year's ceremonies called in ancient colonial sources the ritual of the 4 deities of the directions of the world, the Bacabs. It is the description of this ritual that gives us an example of how the passing of the years was lived and celebrated locally in ancient Mexico.

In short, this ritual annually celebrates the departure of the old year and the arrival or birth of the new year. This, by the way, is really beautiful and very aptly depicted on pages 25-28 of the Codex Dresden, the so-called New Year's pages. The basis for this annual ritual performed by the ancient Mexicans consisted in practice of 4 access paths to the village, 4 year bearers, 4 directions, 4 colors and 4 idols of the Bacabs as ruling deities of the directions of the Mexican world, with the corresponding predictive effect.

According to the old colonial manuscript 'Ritual of the Bacabs' (Landa 1566: Chapters XXXV-XXXVIII), this ritual, performed every year, consisted in outline of the removal of the idol that was on a cairn near one of the entrances to the village the year before and placing a new idol of the next deity on the cairn at the next entrance to the village. The newly placed statue then stood for another year. Each of the 4 access paths to the village was assigned one of the 4 directions and one of the 4 year bearers. This ritual of the Bacabs had a cycle of 4 years and then started again, 13 times in total after which the great feast of the passing of the 52 years was celebrated.

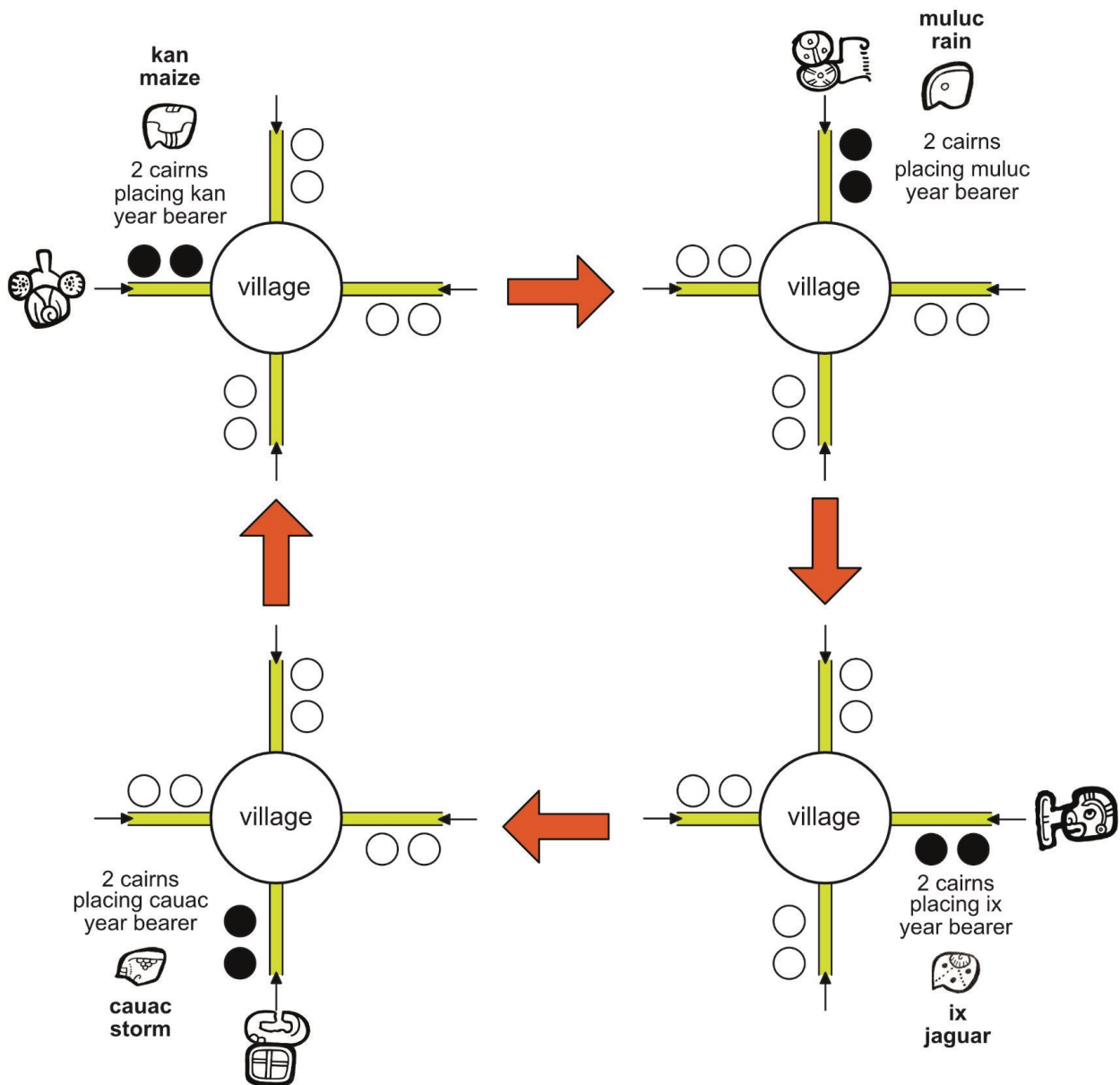


Figure 3.47 - Highly simplified representation of the 4-years cycle for counting and naming years using year bearers and directions.

This could continue into eternity. Thanks to this ritual, the inhabitants of a village knew exactly what year it was, and which deity (Bacab) was the ruler that year, and whether it would be a good, neutral or unfavorable year. In short, each of the 4 entrances to the village had a fixed combination consisting of an idol with the corresponding year bearer and direction. The principle of this 4-year cycle is shown in a very simplified manner in figure 3.47.

In chapter XXXVIII of the ritual of the Bacabs (Roys 1965: 64, 65) the relevant Bacabs in this ritual are described in which a color and direction of the wind is attributed to each Bacab as guardian or patron. This has been given a practical interpretation by priests in the form of the ritual described above.

According to Alfonso Caso (1971: 346), the 20th day of the 18th and last 20-day feast period of the 360-days festival calendar was the last day of the elapsed year. According to him and several authors after him, a name was not given to a year or a day until it had passed. So a given year name is always the last day of the elapsed solar year of 365 days by this principle. This implicitly means that the 5-day transition period was thus the transition from the old to the new year and therefore preceded the new year.

This 5-day period was called the *uayeb* or *wayeb* by the Maya. The ancient Egyptians also had such a transitional period of 5 days in their 365-days year cycle, which was considered a period of 5 feast days during which 5 of their principal gods were worshiped. Determining the 4 year bearers was inseparable from the perpetually repeating cycle of the 260-day count discussed above. For in addition to this 260-day count also the 365-days count of the solar year that was called *haab* with the Maya and *xihuitl* with the Aztec. It was also the 260-day count that generated the day names for the 365-days count (for a more detailed description see Schoenmakers, 2020a).

It should be clear that a day could never be added or skipped in this count, otherwise the counting system and thus the calendar would be completely out of step. This 365-days solar calendar was the most perfect calendar that has existed for thousands of years and would still have existed had the invaded Spaniards not violently ended it.

4 Deities and blood streams

This theme focuses on the composition, sequence, reading direction and meaning of the 9 depicted deities and 4 blood streams (figure 4.1). The question is whether the deities depicted on page 1 of the Codex Fejérváry-Mayer are in the usual, fixed composition and order or whether the creator of this scene has applied an incorrect order and reading direction as Seler (1901: 23) assumes in his discussion. In the following I will try to answer this question.

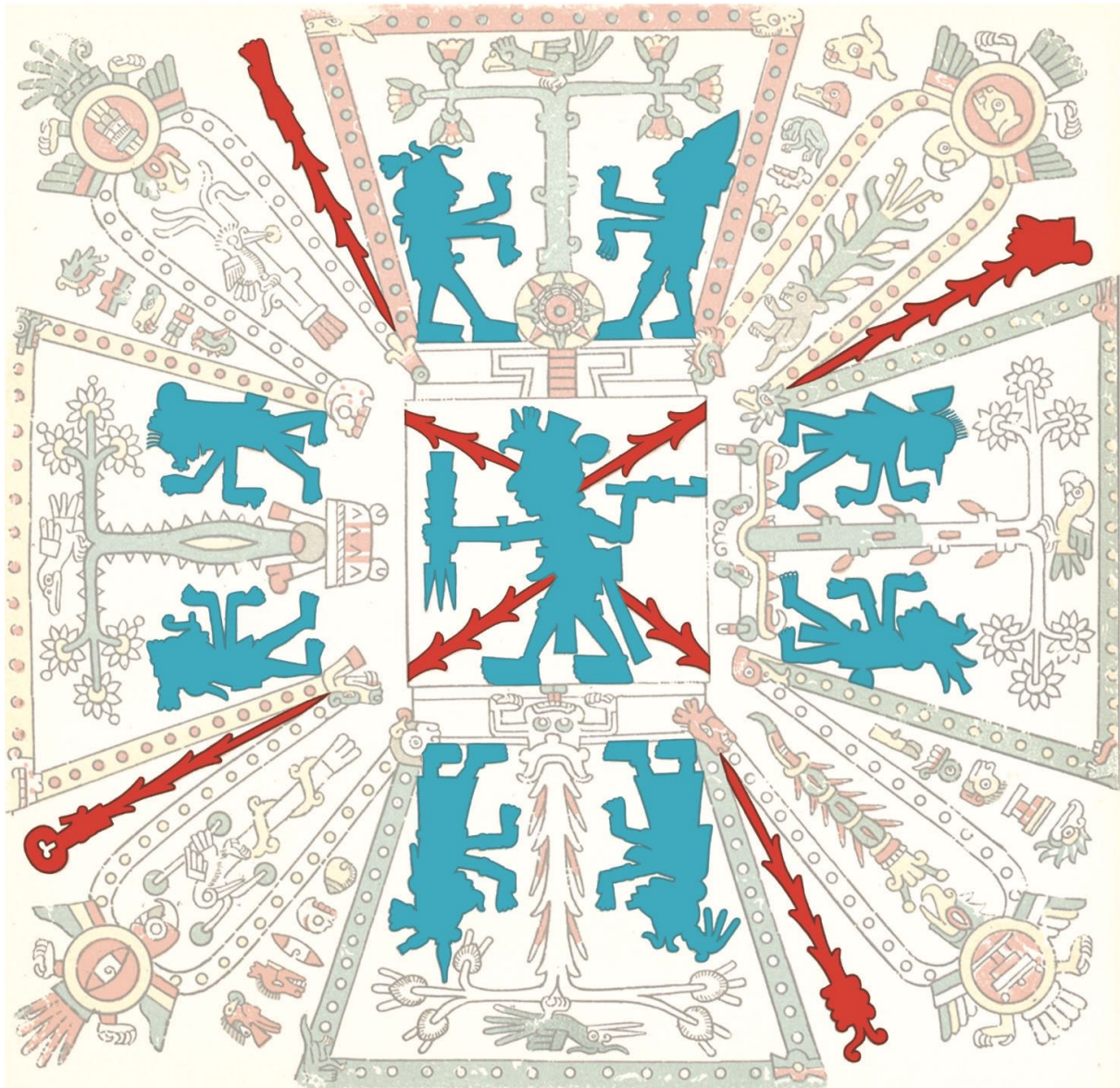


Figure 4.1 - Spatial distribution of the 9 deities and the 4 bloodstreams.

Like all ancient civilizations on earth, the peoples of ancient Mexico believed that the phenomena and events inexplicable to them in their daily life and environment were the work of a wide variety of gods and goddesses. It is going too far for the purposes of this discussion to cover all of these deities because there are simply too many of them. But page 1 of the Codex Fejérváry-Mayer shows a group of gods and goddesses that we will be introduced to.

This group of 9 deities was, according to Seler, first mentioned by Christóval de Castillo (1528-1608) as the "attendants" and "lords of the night". This has been taken over by Leon y Gama (1792: 31, 15) and Eduard Seler (1900: 21-26). These 9 deities are said to be closely intertwined with time and space, which is beautifully depicted in the scene on page 1 of the Codex Fejérváry-Mayer.

4.1 Spatial division

It is this group of 9 deities, commonly referred to as the "9 lords of the night," that is depicted on page 1 of the Codex Fejérváry-Mayer (figure 4.2). In the center is a large, dominant deity with 4 large blood streams flowing in his direction. This deity is the god of fire (Xiuhtecuhtli) and is emphatically placed at the center as ruler of time, fire and the world. The 8 other deities are grouped around him, always in pairs and evenly distributed on the four sides of the scene. These 8 deities are also fully integrated into the surrounding 260-day count and the 4 sides of the world. Their body language indicates sacrifice.

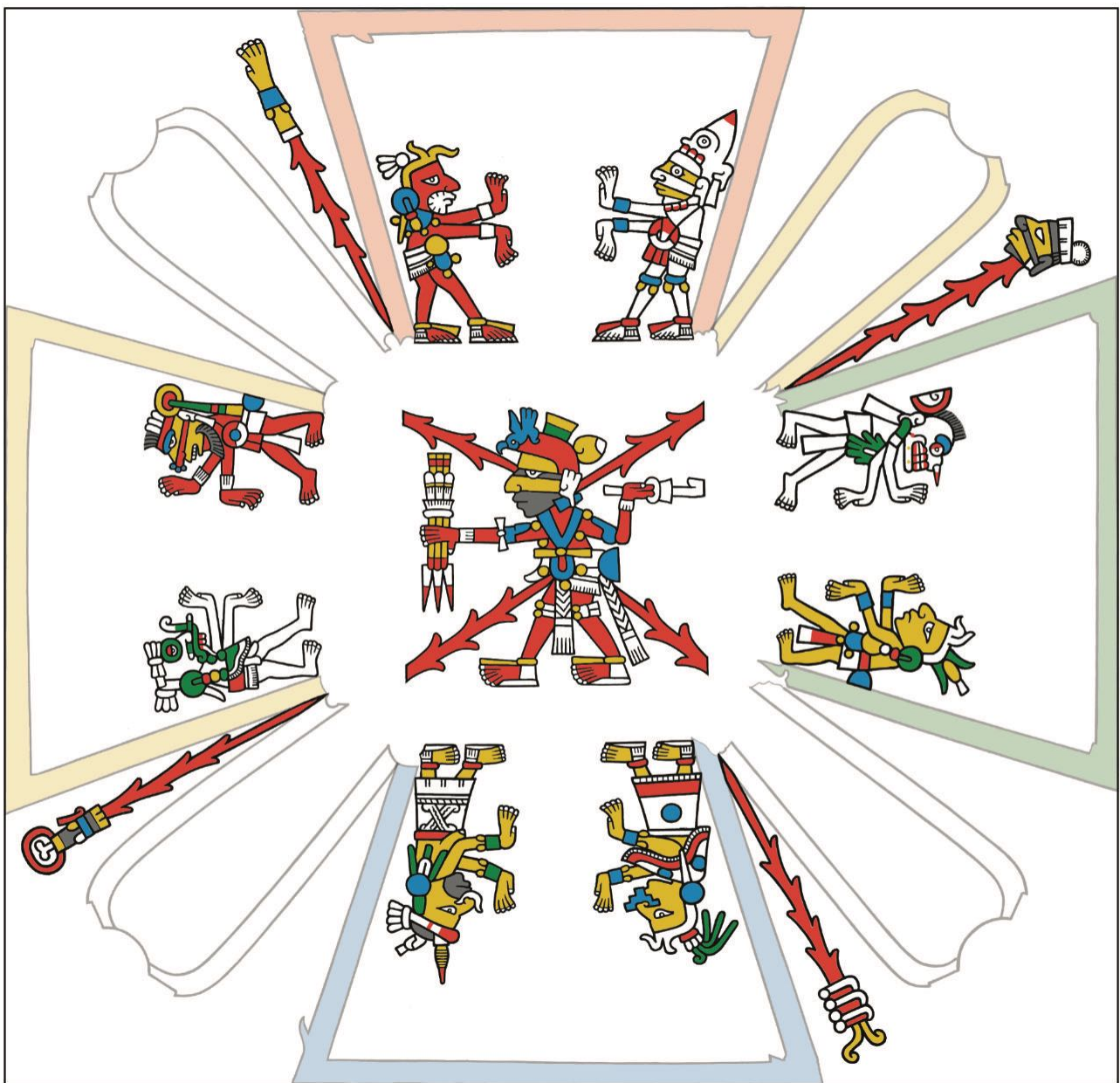


Figure 4.2 - Distribution of the 9 deities on the 4 sides of the scene.

It is not known how this important group of 9 gods and goddesses was called by the indigenous population. Nor is it known what role these 9 deities played in the perception of the ancient Mexican civilizations. We will probably never find out.

Eduard Seler (1900: 21, 22) has checked and visualized Christóval de Castillo's reference to the fixed composition and sequence of these 9 deities as found in a number of Mexican manuscripts. According to Seler, his research shows that this group of 9 deities in the manuscripts examined by him always consists of the same group of gods and goddesses who always have the same fixed composition and order.

4.2 The 4 blood streams

From the four corners of page 1, blood streams run along the four trapeziums that end at the centrally placed god of fire. In the iconography of pre-Hispanic manuscripts, the direction of a flow of water or blood is usually indicated by wavy, sometimes pointed, bulges in the lines. There are many examples of this in the Maya, Aztec and Mixtec manuscripts. These wave patterns are almost always reproduced in the same way in all ancient Mexican manuscripts with picture writing (see figure 4.3).

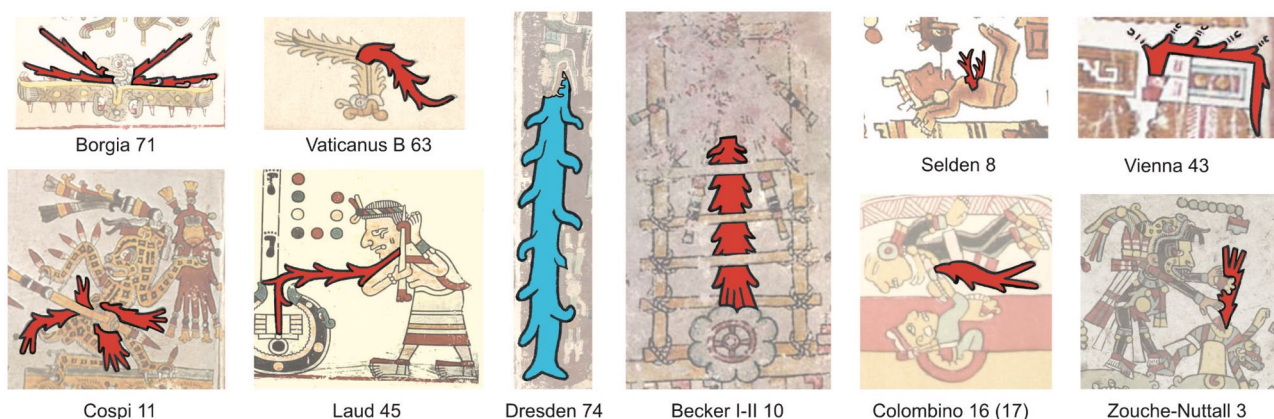


Figure 4.3 - Examples of streams of water and blood in the ancient Mexican manuscripts.

The direction in which these bulges point in the streams of water and blood indicates the direction of flow. In the case of the 4 blood streams on page 1, they all point in the direction of the center, so clearly in the direction of the god of fire. This indicates that the god of fire is nourished by these sacrificial streams of blood that come from the dismembered Aztec god "Smoking Mirror" called Tezcatlipoca.

At the ends of the 4 blood streams are the 4 body parts of the dismembered Aztec god Tezcatlipoca or "Smoking Mirror". The head is depicted at the top right with the characteristic facial painting, a hand at the top left, the rib cage at the bottom right and his characteristic stump with "mirror" at the bottom left. These body parts are enlarged on the right in figure 4.4.

It is noteworthy that the Aztec god Tezcatlipoca, very well known in ancient pre-Hispanic Mexico, is cut into pieces on page 1 Codex Fejérváry-Mayer. But on page 44, the last page of the Fejérváry-Mayer, he is dominantly depicted in the capacity as lord of the days and the time (see figure 3.19).

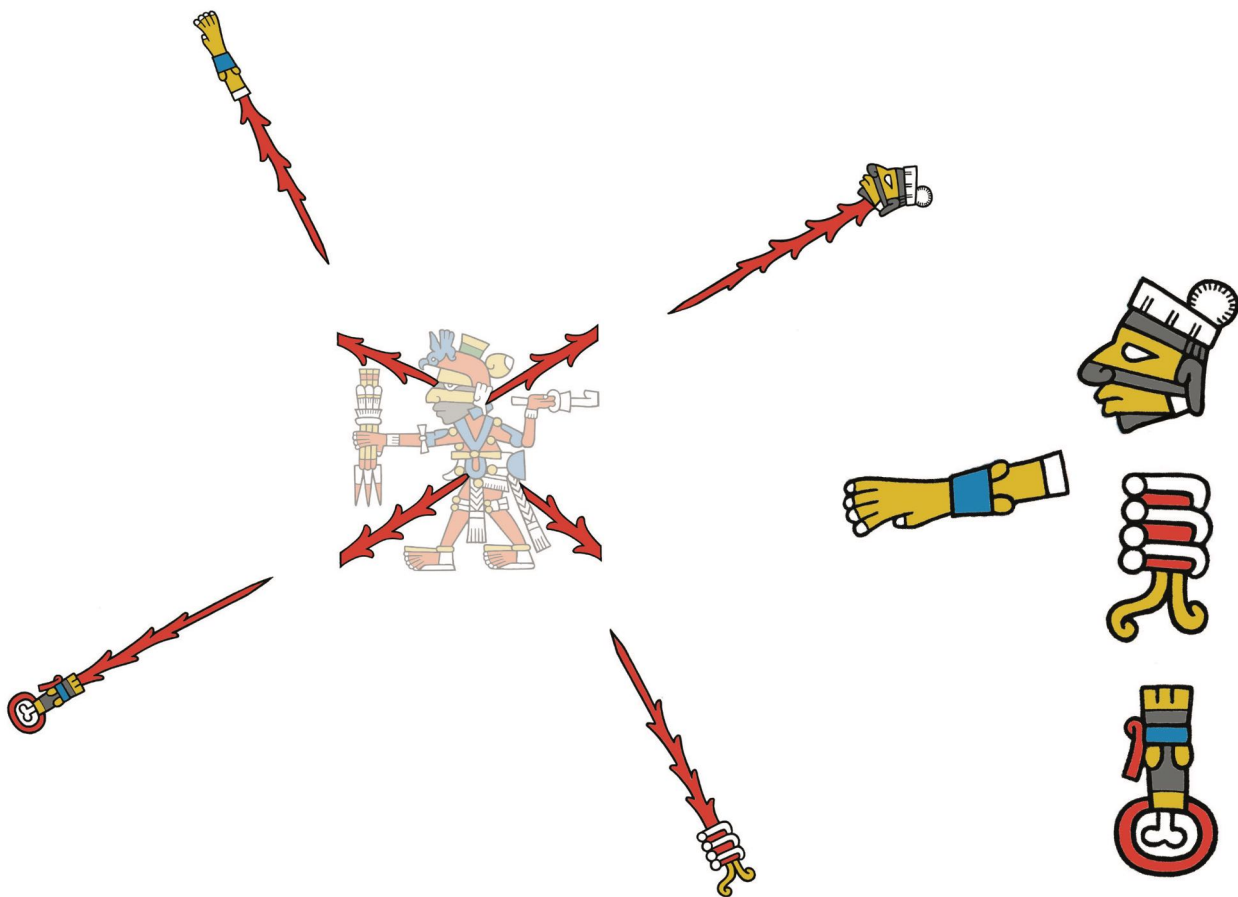


Figure 4.4 - The 4 blood streams flowing from the dismembered god Tezcatlipoca or "Smoking Mirror" towards the central god of fire (Xiuhtecuhtli).

4.3 The 9 deities

The 9 deities clearly played an important role in ancient Mexican society, as they are present in virtually all extant pre-Hispanic Mexican manuscripts and in various memorial stone inscriptions. The fixed composition and sequence according to Seler is:

- 1 God of fire (Xiuhtecuhtli, lord of turquoise, lord of the year and of fire, father of the gods)
- 2 Sacrificial knife god (Itztli, flint knife god, a form of Tezcatlipoca)
- 3 Young Sun God (Piltzintecuhtli, the young morning sun, a form of Tezcatlipoca)
- 4 Maize God (Centeotl)
- 5 Death god (Mictlantecuhtli, ruler of the underworld)
- 6 Water goddess (Chalchiuhtlicue, "Jade skirt")
- 7 Earth goddess (Tlazolteotl, goddess of filth, patron goddess of the midwives)
- 8 Mountain god (Tepeyollotl, heart of the mountains, also a form of Tezcatlipoca)
- 9 Rain God (Tlaloc)

Seler describes the composition and sequence of these 9 deities for the codices Tonalamatl Aubin, Cospi, Vaticanus B 3773 and Telleriano-Remensis. Following Seler, Eloise Quiñones Keber (1995: 156, 157) describes in outline the placement and reading direction of the 9 deities of the night in the codices Telleriano-Remensis, Vaticanus A 3738, Borbonicus, Tonalamatl Aubin, Vaticanus B 3773 and Borgia. Elizabeth Boone (2007: 96, 97) also describes the fixed series of the 9 deities for the same codices, but limits herself to the deities themselves and does not consider the day signs and similarity in reading direction between both series.

Thompson (1985: 208) cites Serna (1892: 345), Boturini (1746: 57) and Leon y Gama (1792: 57) as historical sources mentioning the 9 deities. These sources date from the period well after the invasion and occupation by the Spaniards in 1519 AD. However, all these sources were completely unaware of the existence of the beautiful indigenous manuscripts with picture writing dating from the period before the Spanish conquest because most of these had been destroyed by the Spanish and only a small number had been brought to Europe for years to fall into oblivion in all kinds of European collections.

From the earliest beginnings of pre-Hispanic Mexican civilization to the fatal invasion, conquest and occupation by the Spanish, these 9 deities have been in use. They even appear in the inscriptions made in stone and wood by the founders of Central American civilization, the (pre-) Olmec. Because the names of these 9 deities were missing, scientists have named them G1 to G9. In figure 4.5 I have selected and redrawn a number of graceful and beautifully stylized shapes from the many shapes these 9 deities could have. Each a true work of art in itself.

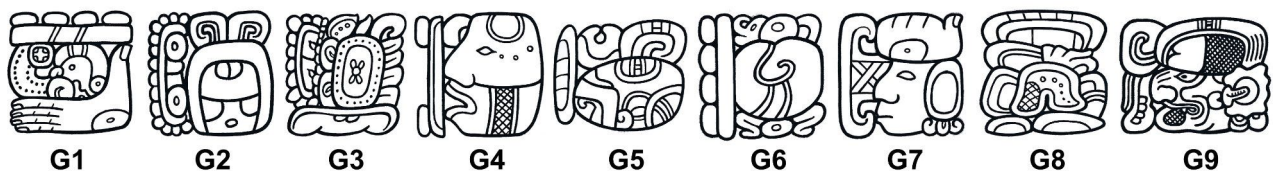


Figure 4.5 - Mayan hieroglyphs G1-G9 of the 9 deities of the night (redrawn from Kettunen 2008 and Montgomery 2006).

These 9 deities were adopted by the later Maya and the nations after them in their inscriptions and manuscripts. But in all cases it concerns the same gods and goddesses, which clearly indicates a very old custom. In this discussion, I have added a few other manuscripts to the manuscripts examined by Seler.

In the ancient pre-Hispanic Mexican manuscripts, it is customary for the main subject of a scene to be displayed in the center of a page. Hence, on page 1 of our manuscript, we find the principal deity in the middle. The importance of this deity is emphasized by the black square frame around it. Moreover, he is depicted as the largest of these 9 deities, so a real "big boss". This is about the god of fire (Xiuhtecuhtli), the god of the turquoise or the precious, lord of the four sides of the world, lord in the center of heaven, creator of the life, the afterlife, the fire, the heat, the domestic hearths with the three stones, the days and the year, the great fire ceremony at the joining or binding of the years every 52 years (figure 4.6).

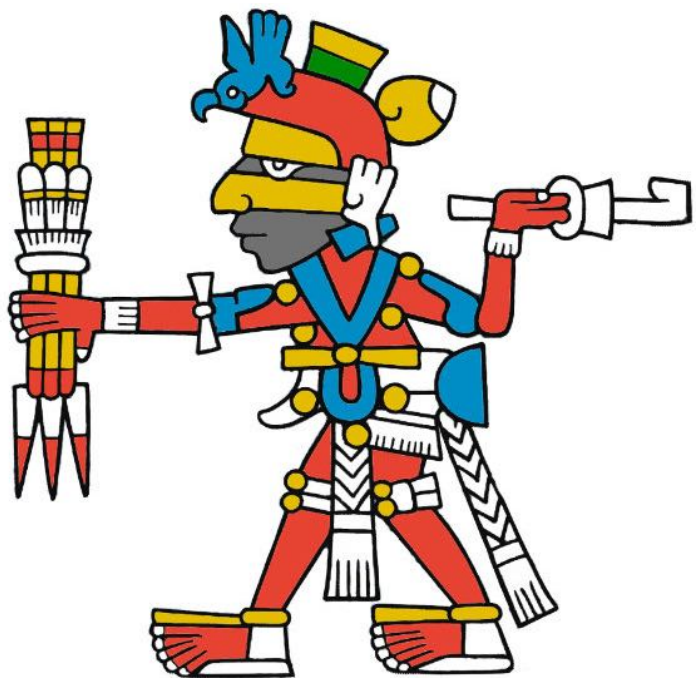


Figure 4.6 - The god of fire Xiuhtecuhtli.

His fires were burning in front of every temple and on the fireplaces in the center of every house. He was also the patron of the Aztec rulers, young warriors and merchants. His animal form was the fire serpent.

The god of fire was associated with the number 3 because of the 3 stones of the fireplaces in the houses. He was not only the first god of the "9 lords of the night" but also of the series of the "13 deities of the days".

According to Miller and Taube (1993: 190, 191), the god of fire was also the god of time and patron of both the day sign of water (*atl*) and of the 13-day period "1 serpent" (*ce coatl*). The Spanish Franciscan brother Bernardino de Sahagún (1969, book 6, chapter 7) describes him as "the mother, the father of the gods residing in the navel of the earth." Thompson (1985: 134) also mentions that one of the names of the god of fire Xiuhtecuhtli was "the navel of the earth".

The god of fire is recognizable by the red color of his body and the painting of his face which is yellow with the lower half dark (sometimes black, sometimes dark gray). A narrow dark transverse stripe runs across the eye. He wears a white loincloth (*maxtlatl*) with two wide hanging straps. Its red headdress has a blue cotinga bird (*xiuhtototl*; Azure cotinga, *Cotinga amabilis*) on the front and a yellow-green head decoration (sometimes called a tiara) in the center of the crown that widens upwards. At the back of the crown, he wears the ear of a jaguar (figure 4.6). The decoration on his ear is probably a bone into which a wedge of blue-green jade has been inserted.

On his chest hangs a blue (turquoise) ring-shaped decoration on a blue collar. He holds a spear-thrower (*atlatl*) in his left hand, a bundle of arrows or spears in the right. These weapons indicate his role as a patron of rulers and warriors.

Eight other deities are depicted around the central god of fire, divided into groups of two. Each group of two occupies one of the four trapeziums. Together with the centrally placed god of fire, they form the so-called "nine lords of the night". In my opinion an incorrect name because it concerns both male gods and female goddesses, not just male gods or lords. Moreover, in the very first publication on this theme, they were not only referred to as gentlemen but also escorts. I choose to speak further about the neutral denomination of deities.

Before we go into the order and reading direction, let's first get acquainted with the 8 other Aztec deities and some of their characteristics.

In the red trapezium above the god of fire, the first pair of deities depict the young sun god (Piltzintecuhtli) reborn every day, together with the sacrificial knife god Itztli, a form of the Aztec deity Tezcatlipoca (see Alfonso Caso 1958: 29; Guilhem Olivier 2003: 53).

The second pair is in the green trapezium to the right of the god of fire. These are the death god (Mictlantecuhtli) and the maize god (Cinteotl).

The third pair is in the blue trapezium below the god of fire and consists of the water goddess (Chalchiuhtli) and the earth goddess (Tlazolteotl).

The yellow trapezium to the left of the god of fire is occupied by the rain god (Tlaloc) and the mountain god Tepeyollotl, again a form of Tezcatlipoca (see Alfonso Caso 1958: 29; Guilhem Olivier 2003: 53). Incidentally, the colors used for the trapeziums are not just arbitrary, they have been chosen deliberately (see Landa 1566: chapters XXXV-XXXVIII and Roys 1965: 64, 65).

Given the role of the god of fire as the hub, center, navel, center of the universe, the father of the gods and the first of the "9 deities of the night," it makes perfect sense that this god is in the center from page 1. He is, after all, the greatest, the most important, the supreme god who rules the reckoning of time, the counting of the days, what we call the calendar.

Sacrificial knife god (stone knife god, Itztli)

Although this deity is usually referred to as the stone knife god or flint knife god, I prefer the name sacrificial knife god because the symbol associated with this god, the red and white stone knife of obsidian or flint, is the instrument by which offerings were made. The red therefore symbolizes the blood that flowed during these offerings. In the picture writings, this symbol is usually associated with sacrificial scenes. The sacrificial knife god Itztli is one of the manifestations of the deity "Smoking Mirror" (Tezcatlipoca) and is represented as one of the deities of the night at a crossing of paths where the sacrificial knife god Itztli stands with his foot in the sign for flint, such as depicted, for example, on page 2 of the Codex Fejérváry-Mayer (Olivier, 2003: 42, 87). It was also connected with the direction what we now call north (Olivier, 2003: 53). He takes the 2nd place in the fixed order of the 9 deities.



Sun god (Piltzintecuhtli, Piltzinteotl, Tonatiuh)

The sun god usually has a red body color and a large yellow sun disk hanging on its chest, often with eagle feathers in its hair (Miller and Taube, 2003: 172). In the 13-day period beginning with the day name '1 death', he appears along with the moon god (Tecuciztecatl). He also appears in the 13-day period beginning with the day name '1 flint', but now together with the death god (Mictlantecuhtli). In the fixed order of the 9 deities, he is the 3rd deity of the night. The sun god was associated with the east, "the house of the sun," the sunrise.

Maize god (Centeotl)

The maize god (Centeotl) is patron of the number 7 (*chicome*) and is the 4th god in the fixed order of the 9 deities of the night. He is the son of the earth goddess (Tlazolteotl) and the 5th deity in the series of 9. The maize is connected to the star group Pleiades (Pleiades). Sometimes also connected to Venus. The maize god can be recognized by his yellow body color and the maize cob in his hair (Seler, 1901: 23)



Death god (Mictlantecuhtli)

The death god is the ruler of the underworld, the realm of the dead *Mictlan*, the area where the sun sets. So basically the underground area where the dead were buried. Some link this to the north, which is impossible because this concept was not known at all in that period. The god of death is the 5th deity in the fixed series of the 9 deities of the night and patron of the day sign dog and of the number 6. He was also the ruler over the 13-day period with flint as the starting day. The god of the death is always easily recognizable by the skull as a head with rather wild looking hair. His body is white and is regularly depicted as a skeleton.

Earth goddess (Tlazolteotl)

According to Olivier (2003: 100) this is the patroness of the day sign jaguar, the goddess of the earth, mistress of lust and fornication just like Tezcatlipoca. She shared with the mountain god Tepeyollotl the protection of the 13-day period that began with the day name '1 deer' (*ce mazatl*). She was also the patroness of the midwives and weavers. As a nose decoration she wears the characteristic shape of a crescent moon. On top of the hair there is a coil for spinning. The earth goddess is the 6th deity in the fixed series of 9.



Water goddess (Chalchiuhtlicue)

The water goddess is the goddess of lakes, running water, birth and fertility and patroness of the day sign serpent and the 13-day period beginning with the day '1 reed' (Miller and Taube 1993: 60). She is also considered the mother of the moon (Olivier, 2003: 133) and appears elsewhere as Tezcatlipoca's elder sister. In the fixed series of 9 deities she is the 7th deity and almost always accompanied by the earth goddess. The water goddess is also called "she with the jade skirt" because she often wears a blue skirt or a blue circle on her skirt.

Mountain god (Tepeyollotl, heart of the mountains)

According to Guilhem Olivier (2003: 53), the god "Smoking Mirror" (Tezcatlipoca) could take on different guises. Besides the form of the sacrificial knife god (Itztli) he could also take the form of the mountain god Tepeyollotl (Baquedano 2014: 64). The mountain god is the 8th deity of the night. He usually wears round earrings while Tezcatlipoca usually wears square earrings. He is also often provided with a beard (Olivier, 2003: 67) and wears a turquoise decoration on top of the nose (*yacaxiuhtl*). The mountain god is also called "heart of the mountains." Thompson (1985: 133) mentions that the conch shell is a constant symbol of the mountain god Tepeyollotl, the Mexican god of the interior of the earth or caves along with the jaguar. He is also the patron of the 3rd day sign house (*calli*) (Boone 2007: 105)



Rain God (Tlaloc)

The rain god Tlaloc is he who makes things sprout, the god of rain, lightning and thunder. His body color is predominantly blue, as we will also see later. He is easily recognizable by his mouth mask with the large curl, his large round or square eye ring and the tusk in the corner of the mouth. The rain god is both a fertility god and a wrathful god. He causes floods and droughts. He is the patron of the day sign deer (*mazatl*), the number 8 and the 7th period of 13-day period beginning with day name '1 rain' (*quiauitl*). The rain god is the 9th of the fixed series of deities. Its animal form was the eagle. The second wife of the rain god was the above mentioned water goddess (Chalchiuhtlicue). In Tenochtitlan, the temple of this god was on the north side of the pyramid and marked the summer solstice and the rainy season that began on June 11th.

4.4 Composition, order and reading direction 9 deities

The 9 deities of the night date back to the beginning of the ancient Mexican era. In the early days they were represented by the Olmec and Maya with nine special hieroglyphs whose original native names are unknown. That is why science has named them G1 through G9 (see figure 4.5). In the oldest inscriptions of dates, for example on memorial stones, these 9 deities, according to Thompson (1985: 208), are part of different time counts.

Munro Edmonson (1988: 32) mentions that the Hauberg stele from 199 AD is the earliest representation of the *novena* (cycle of 9), in this case the cycle of the 9 deities of the night, with glyph A3 the deity G5. Every even *tun* (period of 360 days) starts with G1, according to Edmonson. Linda Schele (1985: 137) describes the Hauberg stele in detail and mentions that this stele most likely dates from 199 AD and that the glyph A3 is clearly the deity G5.

The deity G5 also occurs as glyph A11 on the Leyden Plaque (ca. 320 AD). It is clear that the use of these 9 deities is very old. However, to date no satisfactory explanation has been found for the addition "... of the night". These are the first Spanish historical sources to mention this in such a way, but from all the surviving native Mexican manuscripts there is no direct connection whatsoever that can satisfactorily explain this mentioned relationship between the 9 deities and the night.

Thompson (1985: 210, 211) assumed that the series of the 9 deities in the 260-day count in the Maya continued without interruption to the smallest common denominator of both, which amounts to 2340 days (9×260) and in the Mayan count is indicated as 6.9.0. According to him, this cycle of two counts was of great importance to the Maya and is recorded on pages 30c-33c in the Codex Dresden. This section consists of 9 almanacs with 20 main sections of 117 days each ($20 \times 117 = 2340$). These in turn are divided into 13 days each ($117: 9 = 13$). The sequence starts at 11 *ben*, continues to 11 *oc*, then to 11 *manik* and so on until each day with the numerator 11 has appeared in that sequence. In this way, each day with the numerator 11 occurs nine times. Each time with a different deity of the night starting with G1 in the first column because of the depicted sign for red (sunrise, east) which is connected to the 1st of the 9 deities. But the 9 deities are not depicted and instead the god B (rain god) is depicted nine times.

Thompson (1985: 211) also mentions that attempts to associate the deities of the night with the 365-day year showed that no records of this have been preserved. And here too he assumes that the counting of the 9 deities continued without interruptions and that again the smallest common denominator was used, namely 3285 (9×365) days. Both are incorrect assumptions as shown by three native Aztec manuscripts that fully record the count of the 9 deities over both the 260-day and 52-year count. And these are verifiable facts from the period before the invasion and occupation by the Spaniards, so far before the records of the ancient historical sources written in Spanish that mention both Thompson and Seler.

According to Thompson (1985: 211), each calendar round of 52 years (52×365 is 18,980 days) starts with a different deity from the series of 9. His reasoning is that 18,980 divided by 9 has a remainder of 8. So the last deity of the calendar round is the 8th deity of the series of deities of the night. The next, so the 9th deity, is then the first of the next calendar round. This is just Thompson's assumption without any evidence. However, different ancient Mexican manuscripts tell a different story as will be shown in the following.

Both Seler (1900: 22) and Thompson (1985: 208) mention the reference of Leon y Gama (1792: 30) to Native American historians, including D. Christoval del Castillo, who give an overview of the 9 deities.

Seler believed that the 9 deities ruled over 9 hours of the night. However, when we look at the almanacs in the pre-Hispanic Mexican manuscripts, it can be stated with certainty that they applied only 1 of the 9 deities for each day. Moreover, the old Mexicans did not know the phenomenon of "hours" at all, so they could nothing have based on this.

Unfortunately, the 9 deities of the night do not appear as a complete series in the Maya manuscripts Codex Madrid, Codex Dresden, Codex Paris and Codex Grolier (now called Maya Codex of Mexico). This series also does not occur in the Mixtec manuscripts in the characteristic so-called Mixteca-Puebla style, the codices Zouche-Nuttall, Bodley, Selden (colonial 1556), Vindobonensis Mexicanus I and Colombino-Becker I. So we will have to limit ourselves to the following 12 manuscripts from the Aztec era and the beginning of the colonial period:

- Codex Fejérváry-Mayer, pages 2-4
- Codex Borbonicus, pages 2-20
- Codex Tonalamatl Aubin, pages 2-8
- Codex Borgia, page 14
- Codex Telleriano-Remensis, pages 8-24
- Codex Tudela
- Codex Vaticanus A 3738
- Codex Cospi, pages 2-8
- Codex Vaticanus B 3773
- Codex Laud, page 1
- Tonalamatl Aubin 20, 1 page
- Codex Portfirio Díaz, page 33

In this order, the 12 manuscripts will be discussed further below.

If you want to view these beautiful codices yourself, you can visit the Famsi website via the url link: <http://www.famsi.org/index.html>

They can be found on the homepage under the 'Writing' tab, search under Aztec, Maya and Mixtec for the heading 'Graz codices'. Well worth it.

Codex Fejérváry-Mayer pages 2-4

The applied drawing and painting technique, colors and the iconography used in this picture writing show that the artist who drew and painted page 1 of the Codex Fejérváry-Mayer very likely also drew and painted the rest of this manuscript. He or she must therefore have been familiar with the fixed sequence of the 9 deities of the night as shown by the full sequence shown on pages 2, 3 and 4 (figure 4.7) with a reading direction from right to left.

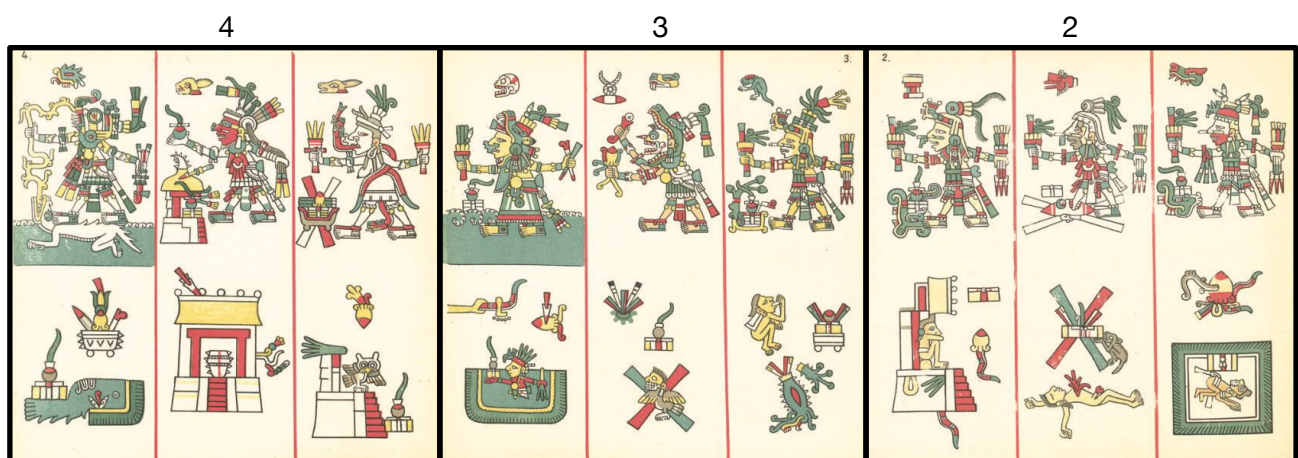


Figure 4.7 - The 9 deities on pages 2, 3 and 4 of the Codex Fejérváry-Mayer in the fixed composition and in the reading direction from right to left (Loubat 1898 edition).

The 9 deities are in the fixed composition and order as mentioned by Eduard Seler (1901: 22). In figure 4.8, the 9 deities and associated day signs, in the order shown on pages 2, 3, and 4, are placed side by side. On the basis of the day signs depicted with the deities, here otherwise without day numbers, in combination with the fixed order of these day signs, it is easy to deduce that the reading direction of the day signs is from right to left. The deities also all look to the left, so also in the reading direction.

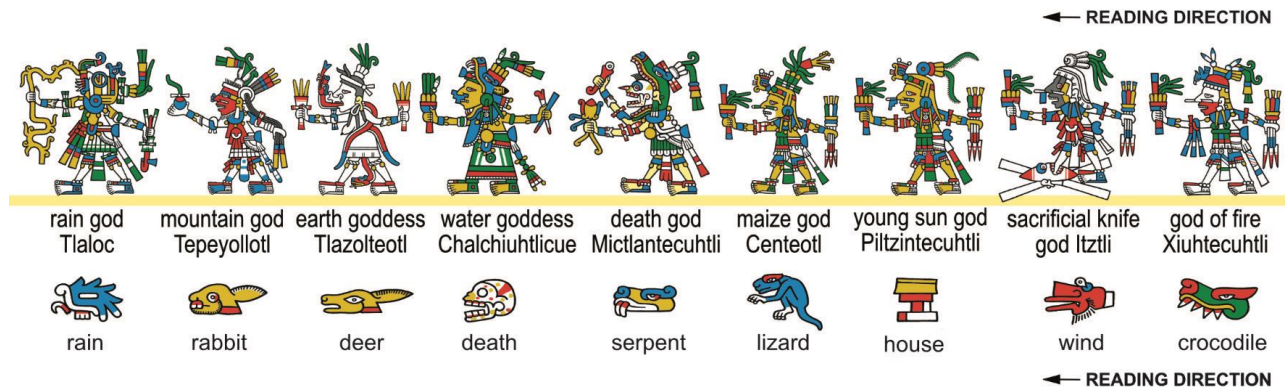


Figure 4.8 - The 9 deities on pages 2, 3 and 4 of the Codex Fejérváry-Mayer in the fixed composition and order and in the same reading direction as the day signs. The deities look to the left, so also in the same reading direction.

This series of deities, which follows directly from the series of deities as applied on page 1, will be used later, under 4.2.3, to compare both series.

In order to judge whether Eduard Seler is correct that the 9 deities on page 1 are in the opposite reading direction due to an error by the author of this page, first the 9 deities of the night appearing in the other manuscripts are analyzed. This can be used to determine whether composition and order are indeed always the same and whether it is a fixed rule that the 9 deities are always in the same reading direction as the day signs.

Codex Borbonicus pages 2-20

In the Codex Borbonicus, the 9 deities of the night are included in the 260-day count. This count is divided in the Borbonicus into 20 periods of 13 days. All 13-day periods are each shown on a separate page. Pages 1 and 2 are missing from this codex. In figure 4.9, page 9, as the clearest and most complete, has been used to determine the reading direction and order of the 9 deities. Because each page represents a 13-day period, the day numbering is also always from 1 to 13. This also determines the reading direction, which therefore goes from left to right and then upwards, as can be seen in figure 4.9.

The Borbonicus also clearly shows that the 9 deities are always counted as a series of 9. So arriving at the 9th deity, the rain god, the sequence of 9 starts again with the first deity, the god of fire. And so this sequence of 9 keeps repeating itself as a fixed sequence until the last day of the solar year, the 360th but in reality 365th day, after which the count of the 9 deities breaks off at the 8th deity, the mountain god, and in the new year simply starts again with the 1st deity, the god of fire. Charles Bowditch (1900: 145-154) has shown this on pages 19 and 20 (referred to by Bowditch as 21 and 22) of the Graz facsimile of the Borbonicus which shows a complete 52-year cycle.

It is clear that the drawn deities on page 9 of the Codex Borbonicus are in the usual fixed composition and order and in a reading direction from left to right and from bottom to top. The depicted day signs and day numbers are also in the fixed order and in a reading direction from left to right and from bottom to top. It is remarkable and unusual, however, that the deities look against the reading direction.

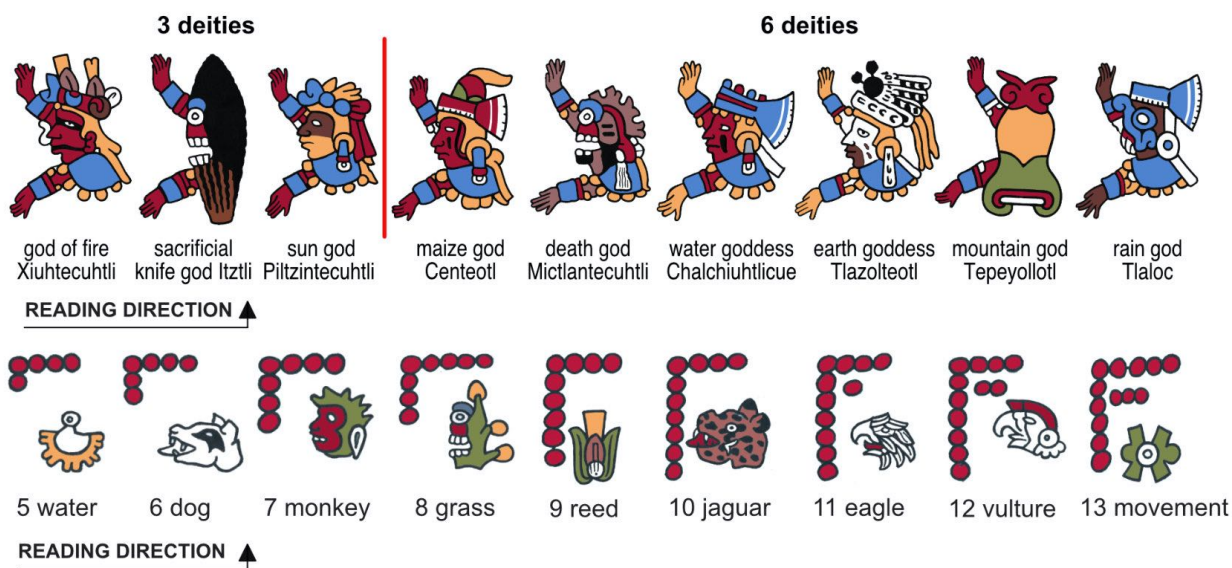
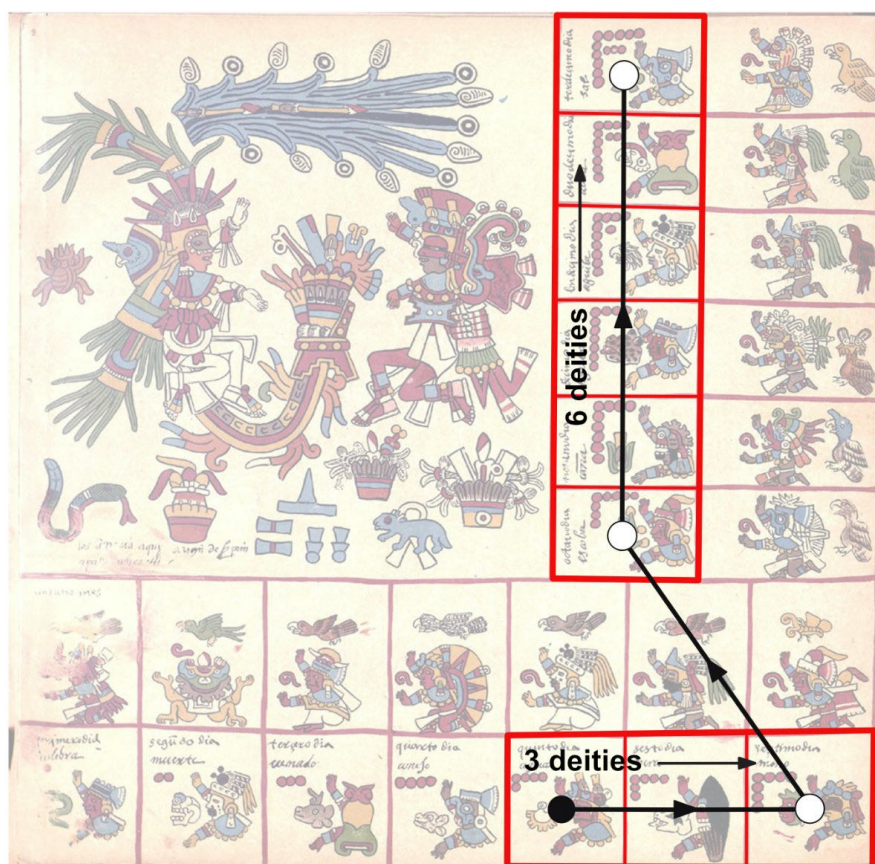


Figure 4.9 - The 9 deities on page 9 of the Codex Borbonicus are in the usual fixed composition and order. The reading direction is horizontal from left to right and vertical from bottom to top and is the same as that of the day signs.

Tonalamatl Aubin pages 1-20

Also in the Tonalamatl Aubin, the 9 deities of the night are included in the 260-day count shown on pages 1-20. And, as with the Borbonicus, pages 1 and 2 are missing. But because pages 3-20 in this manuscript are clear and complete, the reading direction and the composition and order of the 9 deities can easily be determined. As can be seen in figure 4.10, the reading direction is exactly the opposite of the Borbonicus.

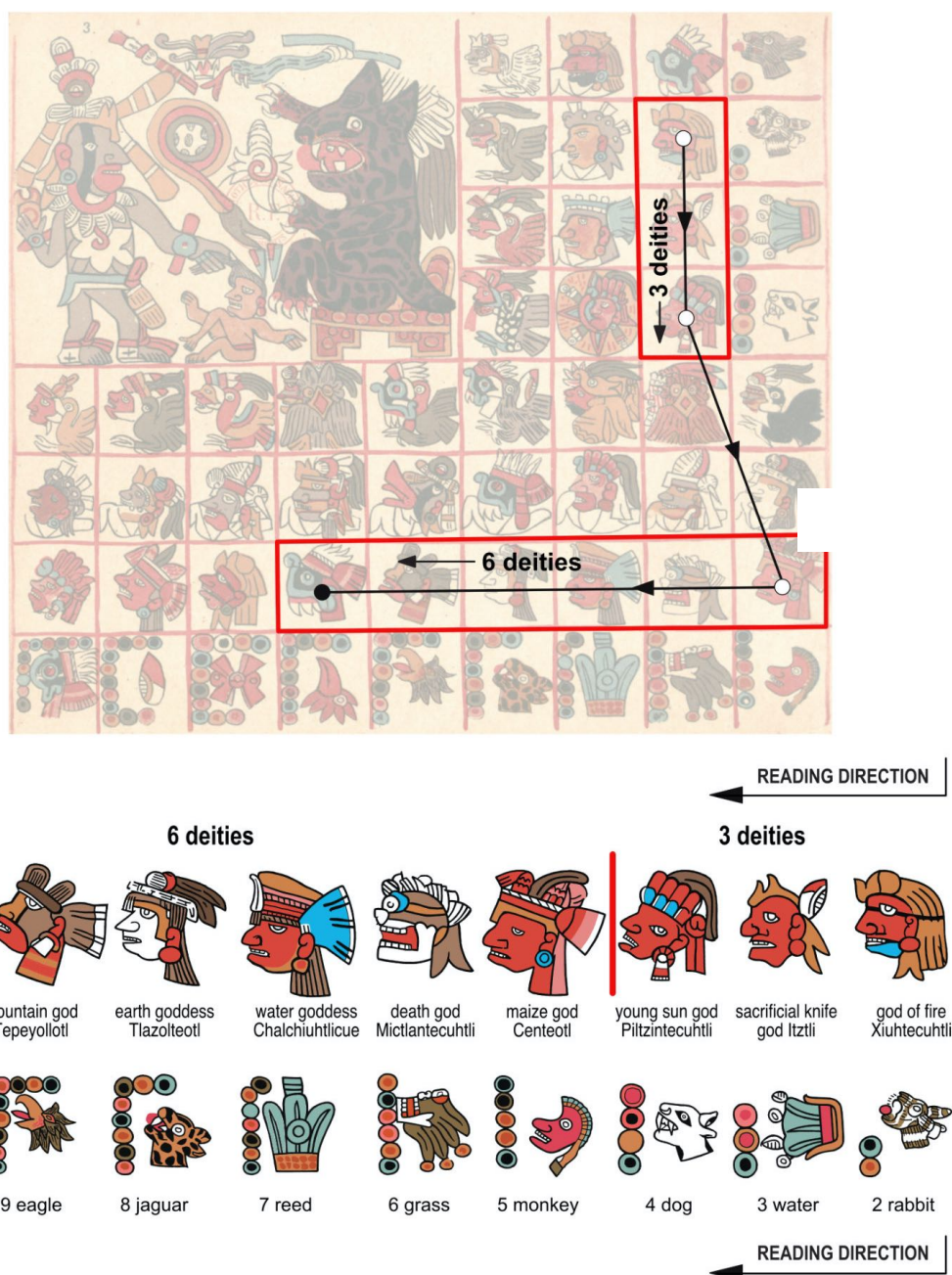


Figure 4.10 - The 9 deities on page 3 of the Tonalamatl Aubin have the same fixed composition and are neatly in the fixed order. Based on the order of the deities and the signs of the day, the reading direction on each page is vertical from top to bottom and horizontal from right to left.

The 20 pages of the 260-day count in the Tonalamatl Aubin read from left to right. Despite the absence of the first two pages, this reading direction can easily be determined by the day name on each page (top right) and the order of the corresponding day signs on the 18 pages (figure 3.21). The 1st day name on page 3 of the Tonalamatl Aubin is namely '1 deer', the 1st day sign of the 3rd series of 13 days. On page 4, the 1st day name is '1 flower', the 1st day sign of the 4th series of 13 days. On the last page 20, the 1st day name is '1 rabbit', the 1st day sign of the 20th series of 13 days. However, the reading direction per page is different, namely vertically from top to bottom (4 day signs) and horizontally from right to left (9 day signs) (figure 4.10). The reading direction of the 9 deities is also from top to bottom (3 deities) and from right to left (6 deities) and has the usual fixed composition and order (figure 4.10). On page 3 the count of the 9 deities starts at the top with the god of fire (red dot) and ends with the 9th deity (black dot), the rain god.

Codex Borgia page 14

In contrast to the previous two manuscripts, the 9 deities of the night in the Codex Borgia are shown together on page 14 (figure 4.11). Here too the 9 deities have the same composition and are in the same, fixed order. The reading direction is again easy to determine on the basis of the fixed order of the day signs, starting at the bottom right with crocodile (red dot) and ending at the top left with water (black dot). The reading direction in this case is a zigzag pattern starting from bottom right to bottom left, follows the day signs and ends at the top left at the day sign water.

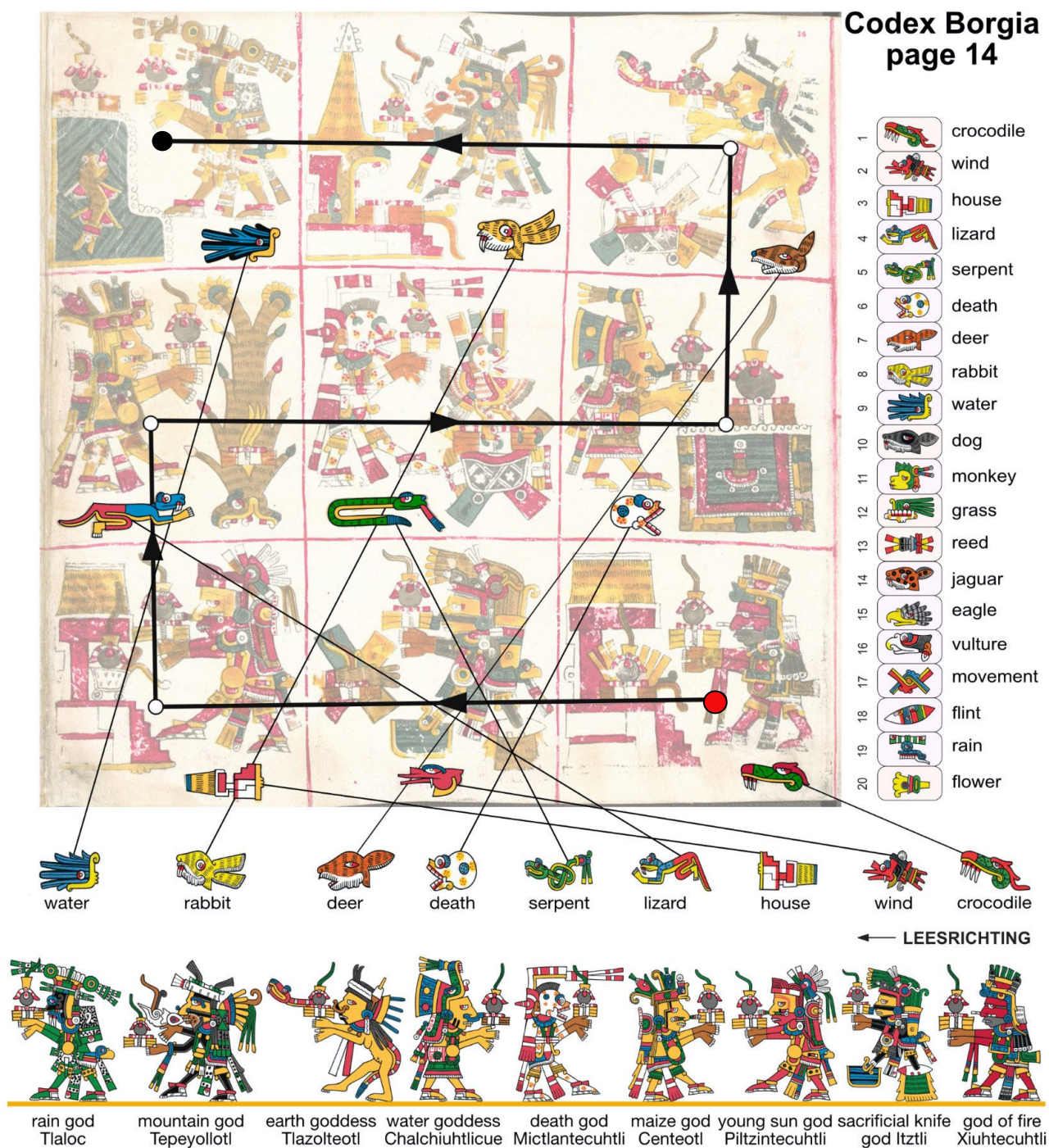


Figure 4.11 - The 9 deities on page 14 of the Codex Borgia again have the same composition and are in the fixed order. Based on the order of the deities and the signs of the day, the reading direction is a zigzag pattern from bottom right to top left.

Codex Telleriano-Remensis pages 7v-27r

The Codex Telleriano-Remensis was created by and compiled from various sources between ca.1540 and 1555 (Quiñones Keber 1995: 128, 129). Although dating from the period shortly after the invasion and occupation by the Spaniards, this beautiful manuscript is mainly based on the original knowledge and skills of the native picture writing before the Spanish invasion. A wonderful example of this is the 260-day count shown in 13-day periods on pages (folios) 8r-24r which are read from left to right. Each 13-day period is spread over 2 pages. The first page (7v) of the first 13-day period is missing. By counting back the day signs, it turns out that the first day name on page 7v should have been '1 crocodile'. So the missing page 7v, along with page 8r, formed the first 13-day period of this 260-day count. As an example, figure 4.12 shows a full 13-day period and a full sequence of the 9 deities of pages 9v-10r.

The reading direction of the pages is from left to right. The 9 deities and the day signs are read horizontally from left to right and vertically from top to bottom. The series of 9 deities, in figure 4.12 outlined in red, thus starts at the top left at the god of fire (red dot) on page 9v and ends at the top right at the rain god (black dot) on page 10r.

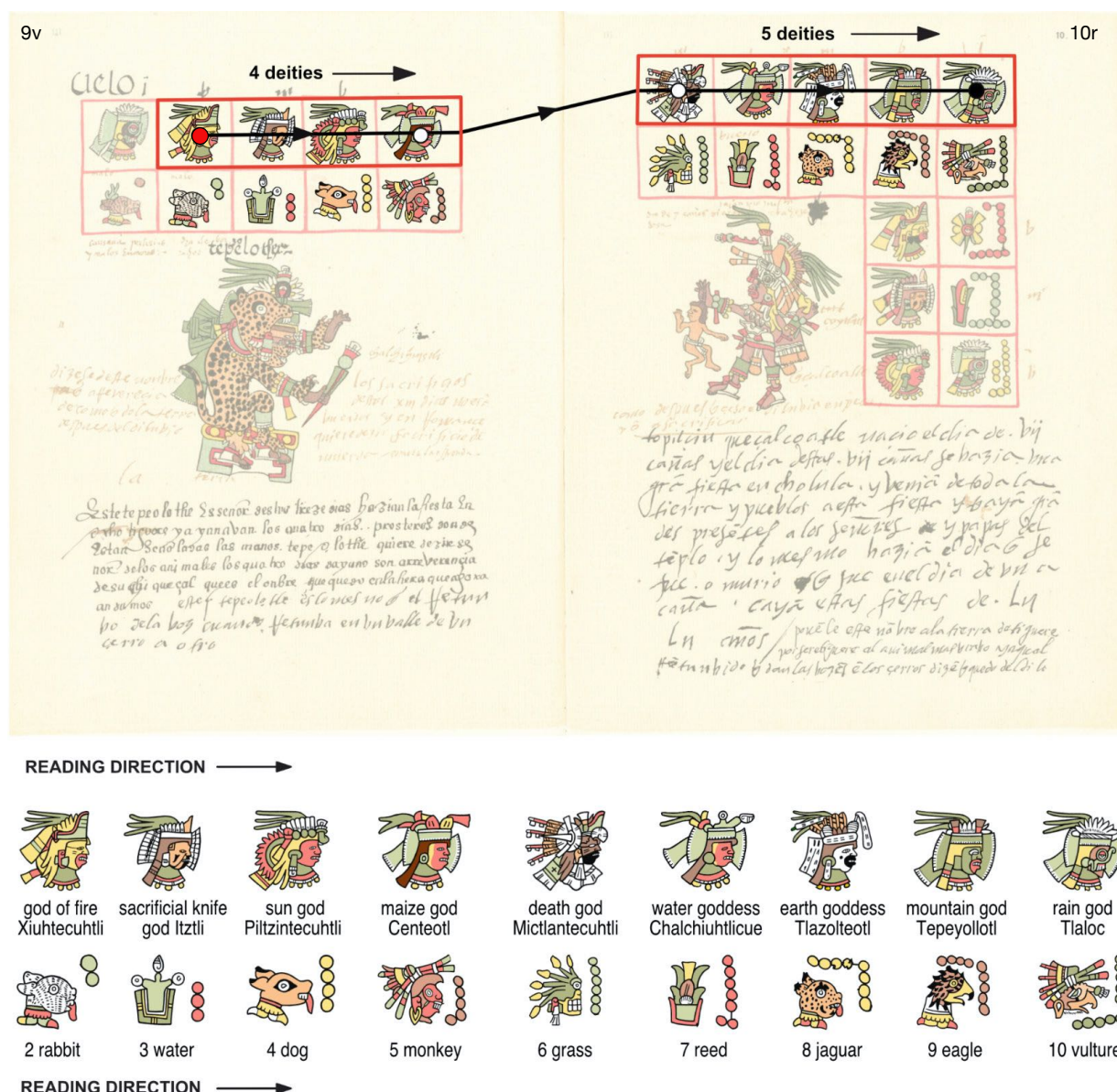


Figure 4.12 - The day signs with day numbers and the 9 deities are shown in the usual fixed composition and order and are in the same reading direction.

The 13-day period on pages 9v-10r begins with the day '1 deer' and ends with the day '13 rain'. This is the 3rd series of the 260-day count. The Codex Telleriano-Remensis belongs to the Magliabechiani group (including codices Vaticanus A 3738 (formerly Codice Ríos), Magliabechiano, Tudela, Tovar) and dates from the 16th century after the invasion by the Spaniards.

But there is something odd about the 260-day count shown on pages 19-51 in the 1995 issue of Eloise Quiñones Keber. Assuming a full 260-day count, 20 periods of 13 days must be present. Since it has been established that the 260-day count on page 7v should start with the first 13-day period, the numbering of the pages should continue up to and including 26v. To demonstrate this, I have shown in figure 4.13 a full 260-day count with Aztec day signs starting with page 7v (bottom left). When the full count of the 20 series is followed, the numbering of the twentieth and last series of 13 days results in the combination of pages 26v and 27r (top row in figure 4.13) and ends as usual with the day name '13 flower' (27r; top right figure 4.13).

		1	2	3	4	5	6	7	8	9	10	11	12	13	
SERIES 20	26v														27r
SERIES 19	25v														26r
SERIES 18	24v														25r
SERIES 17	23v														24r
SERIES 16	22v														23r
SERIES 15	21v														22r
SERIES 14	20v														21r
SERIES 13	19v														20r
SERIES 12	18v														19r
SERIES 11	17v														18r
SERIES 10	16v														17r
SERIES 09	15v														16r
SERIES 08	14v														15r
SERIES 07	13v														14r
SERIES 06	12v														13r
SERIES 05	11v														12r
SERIES 04	10v														11r
SERIES 03	9v														10r
SERIES 02	8v														9r
SERIES 01	7v														8r
PAGES VERSO (V) LEFT		PAGES RECTO (R) RIGHT													

Figure 4.13 - The full 260-day count shown with day signs with a format according to the standard pre-Hispanic day signs of the Aztec. The reading direction in this figure is horizontal from left to right and vertical from bottom to top. 20 series of 13 days are required for this basic performance. The theoretically required pages with numbering are listed on the left and right side.

When the pages present in the Codex Telleriano-Remensis with the 260-day count are fitted into this overview of the base, it appears that 7 pages are missing (colorless areas in figure 4.14) and that in the applied order the pages 13v-13r (in figure 4.14 series 15-16) have been swapped with pages 19v-19r (series 06-07). Figure 4.14 shows the result.

		1	2	3	4	5	6	7	8	9	10	11	12	13	
SERIES 20	26v			23v							24r				27r
SERIES 19	25v			22v							23r				26r
SERIES 18	24v			21v							22r				25r
SERIES 17	23v			20v							21r				24r
SERIES 16	22v			13v							20r				23r
SERIES 15	21v			18v							13r				22r
SERIES 14	20v										18r				21r
SERIES 13	19v			17v											20r
SERIES 12	18v			16v							17r				19r
SERIES 11	17v			15v							16r				18r
SERIES 10	16v										15r				17r
SERIES 09	15v			14v											16r
SERIES 08	14v										14r				15r
SERIES 07	13v			19v											14r
SERIES 06	12v										19r				13r
SERIES 05	11v														12r
SERIES 04	10v														11r
SERIES 03	9v														10r
SERIES 02	8v														9r
SERIES 01	7v														8r
PAGES VERSO (V) LEFT															
PAGES RECTO (R) RIGHT															

The 260-day count in the Codex Vaticanus A 3738 is shown in full with the 20 periods of 13 days. Each 13-day period is spread over 2 pages depicted with 5 days on the verso (v) side and 8 days on the recto (r) side. This codex is available on the Pueblos Originarios website under the Códices coloniales as Rios (Vaticanus 3738) or directly under the link <https://pueblosoriginarios.com/enlaces/escritura2.html>.



READING DIRECTION →



READING DIRECTION →

Figure 4.15 - Example of the setup of the 20 periods of 13 days in the Codex Vaticanus A 3738 with the composition and order of the 9 deities of the night.

The reading direction of the pages of the Codex Vaticanus A 3738 is from left to right. The 13-day periods of the 260-day count are read horizontally from left to right and vertically from top to bottom. It is clear that in this codex the 9 deities are again in the usual fixed composition and order (figure 4.15).

Codex Cospi pages 1-8

In the Codex Cospi the 260-day count is shown in its entirety spread over 8 pages in 5 rows of 52 days. The reading direction of the pages is from left to right. It is unique that the 9 deities in this codex are always shown in combination with the corresponding day sign and thus together form a unit. In figure 4.16 only pages 4, 5 and 6 are shown with a red boxed selection of the series of 9 deities.

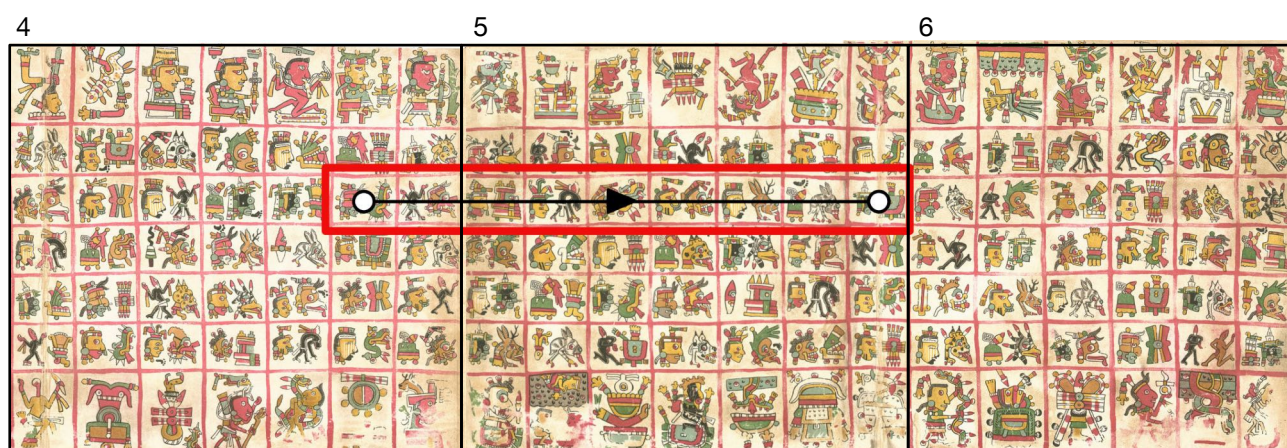


Figure 4.16 - Example of the design and layout of the 260-day count on the pages 1-8 of the Codex cospi. Pictured are the pages 4, 5 and 6 with a full range of 9 deities of the night and their associated day signs indicated by a red frame (see figure 4.17).

The 9 deities are also in the Codex Cospi in the fixed composition and order and also in the same reading direction as the day signs, here from left to right. In figure 4.17 the series of the day signs and 9 deities are shown separately.

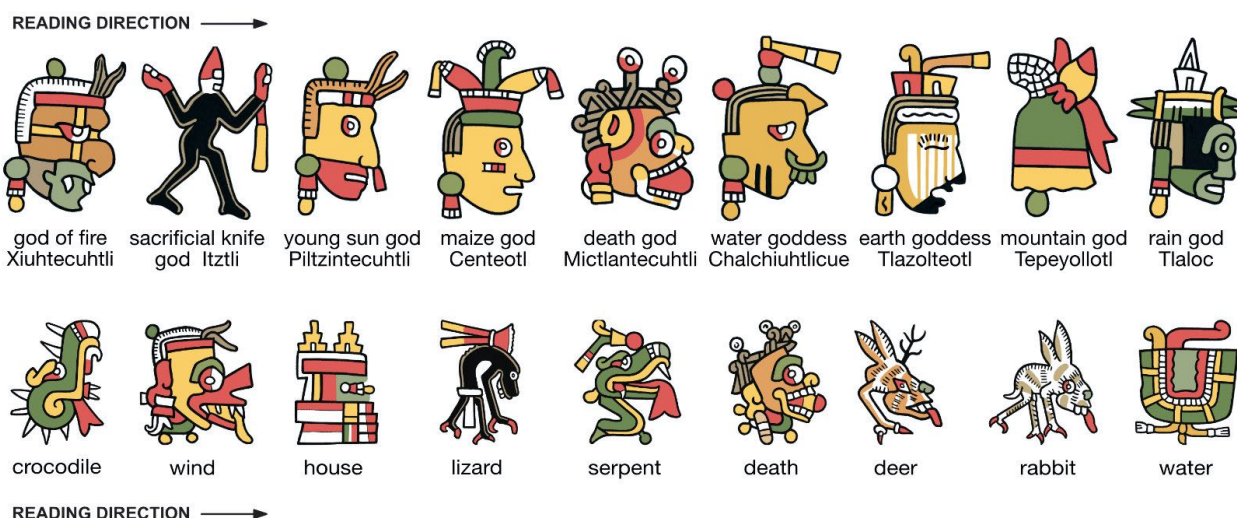


Figure 4.17 - The individual series of the 9 deities and associated day signs from the red framed area of figure 4.16.

Codex Vaticanus B 3773 pages 19-24

In Codex Vaticanus B 3773, pages 1-8 contain a 260-day count, but it does not include the 9 deities of the night. However, these 9 deities of the night are shown as a separate series spread over pages 19-24. And here, too, the reading direction is easy to determine by the order of the day signs that are displayed at the height of the heads of the 9 deities (top row in figure 4.18). And this one indicates also a reading direction from left to right. The corresponding day signs are shown enlarged at the bottom of figure 4.18. Figure 4.18 shows in the center an overview of the 9 deities and their locations on pages 19-24. As in the Codex Fejérváry-Mayer and the Codex Borgia, the 9 deities are shown as complete figures.

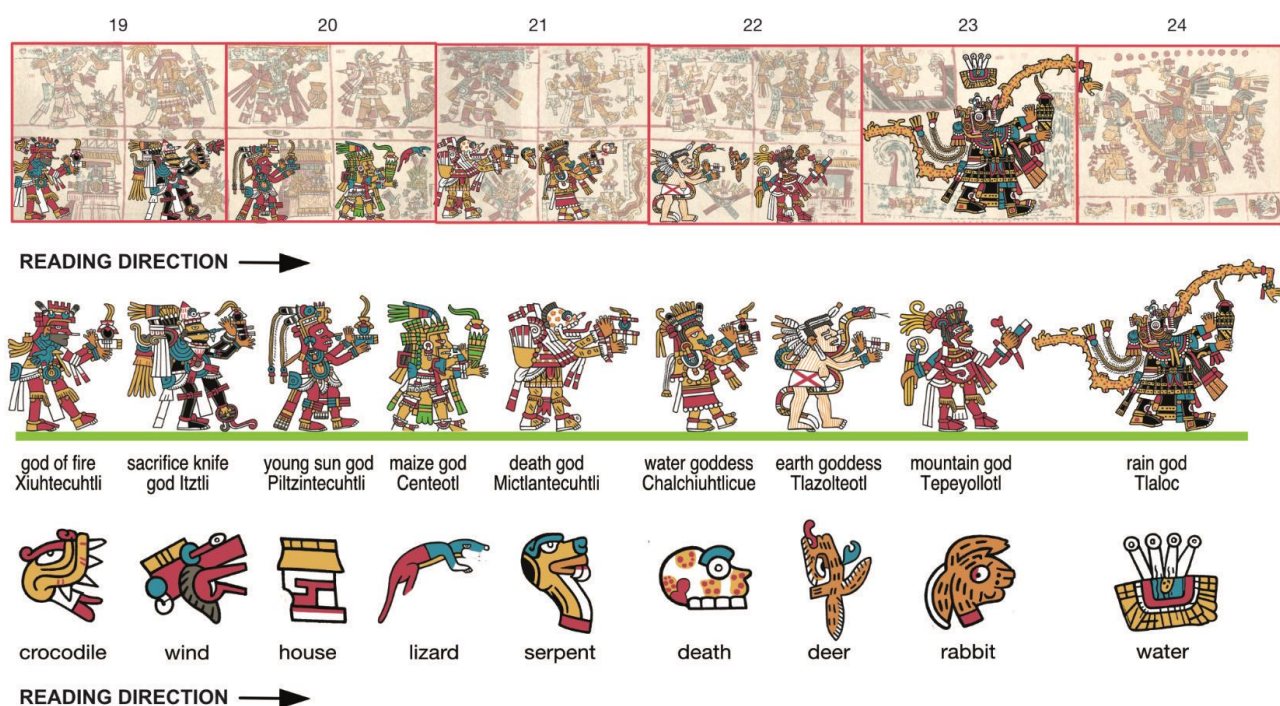


Figure 4.18 - At the top the placement of the 9 deities on pages 19-24 of the Codex Vaticanus B 3773 with an enlarged representation of the individual deities and associated day signs below.

Also in Codex Vaticanus B 3773 the 9 deities and associated day signs appear to be in the usual fixed composition and order.

Codex Tudela pages 98v-99r

The Codex Tudela is a manuscript dating from around 1553-1554 AD (Elizabeth Hill Boone 1983: 87). This codex consists partly of picture writing and partly of written Spanish text on European paper. This manuscript belongs to the so-called Magliabechiano Group (including codices Magliabechiano, Tovar, Telleriano-Remensis, Vaticanus A/Ríos), all made in the 16th century after the invasion by the Spaniards, also called colonial codices.

Figure 4.19 shows the pages 98v-99r showing one 13-day period from the 260-day count. Here, too, the 9 deities have been applied in the usual fixed composition and sequence. The reading direction of the pages is from left to right and also the 9 deities and day signs read from left to right.

In the Codex Tudela, the 260-day count is presented as a horizontal series of 20 periods of 13 days and covers pages 97r-124r (Boone 2007: 239-240). Each 13-day period is divided into two pages with 7 days on the verso (v) page and 6 days on the recto (r) page. The 260-day count in the Codex Tudela is further divided into 4 groups of 65 days, and per group are two deities and a cosmic tree depicted. In figure 4.19 only pages 98v and 99r are shown with 7 of the 9 deities on page 98v and 2 deities on page 99r.



Figure 4.19 - Example of the sequence of the 9 deities of the night and their associated day signs as shown on pages 98v-99r of the colonial Codex Tudela.

Codex Laud page 1

As mentioned earlier, the Codex Laud may have been made by the same artist as the Codex Fejérváry-Mayer. The drawing and painting work has the same clean lines and uniform coloring, the same structure, and iconographically some, slightly different, day signs such as the day sign dog, where it seems as if the ears have been cut off.

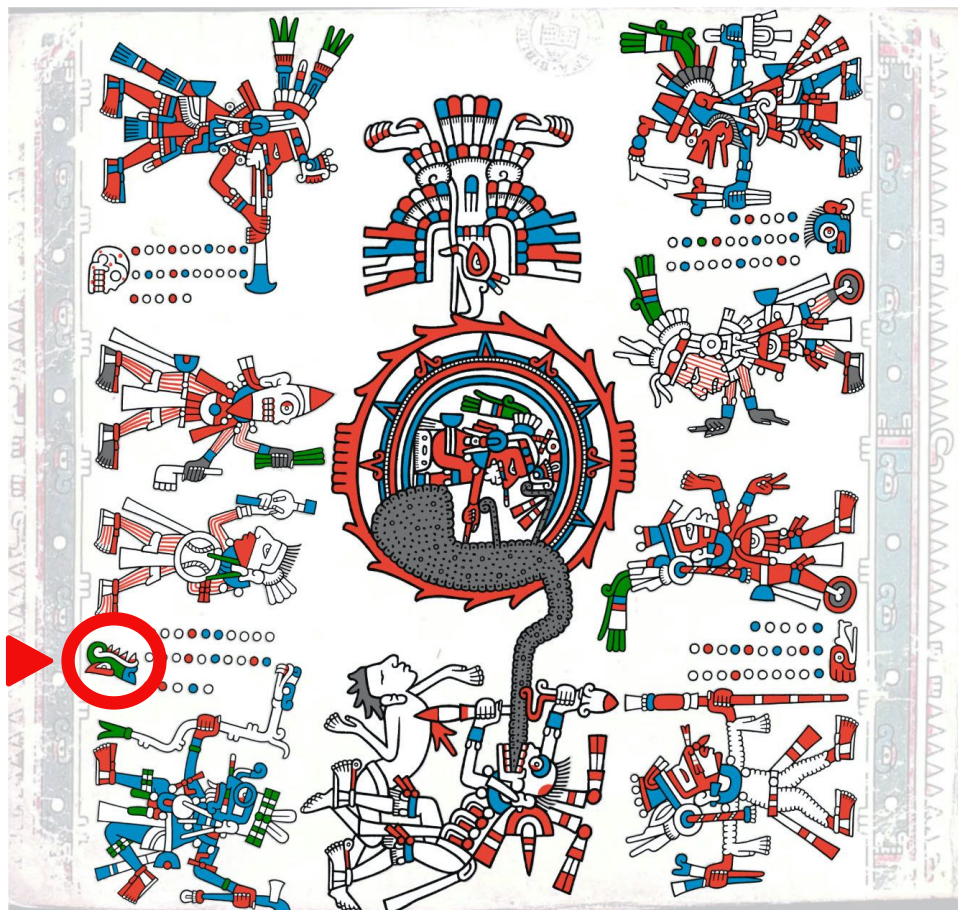


Figure 4.20 - Page 1 of the Codex Laud showing the 9 deities and 4 day signs indicating the composition and fixed order of a 260 day count in the form of 4 x 65 days.

The day count shown on page 1 (figure 4.20) starts with the day sign crocodile (in red circle with arrowhead) at the bottom left. When the sequence of the 4 day signs is followed again, the next day sign is dead, followed by the day signs monkey and vulture (see figure 4.21). According to the order of these day signs, the count should be read from left to right, ie clockwise. These 4 day signs are the characteristic opening signs of the 4 x 65 day count, a frequently used short form of the 260 day count. It is strange that each of the 4 day signs is accompanied by 25 days in the form of dots, so in fact representing a total of 26 days together. So certainly not a usual 260-day count.

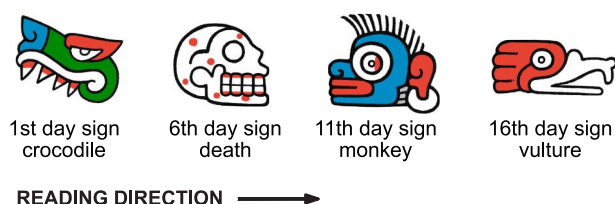
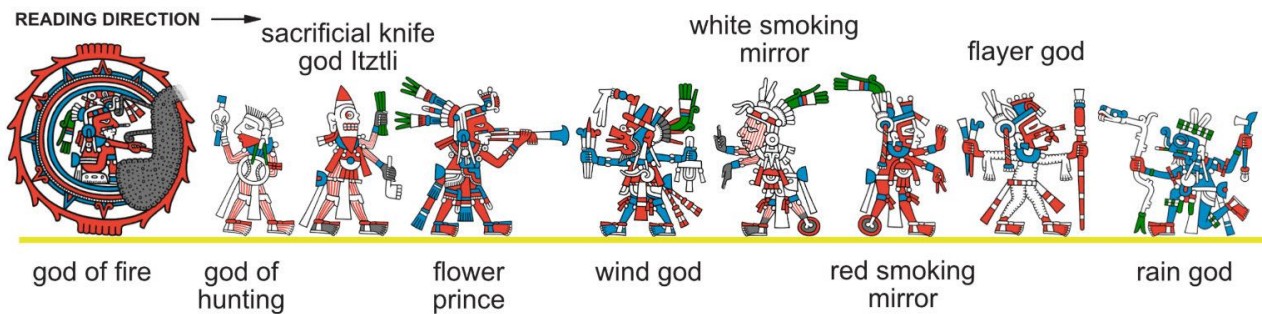


Figure 4.21 - The 4 consecutive day signs that are also starting signs of the 4 x 65-day count.

The series of 9 deities begins, as with the Codex Fejérváry-Mayer on page 1, in the middle with the god of fire and ends with the rain god at the bottom left (figure 4.20). The god of fire is in the solar circle with a circular blood flow around it. Following the order of the 4 day signs, the reading direction of this scene is clockwise, starting with the god of fire and followed by the god of hunting standing next to the day sign crocodile, the start of the 260-day count. The series of deities is depicted in a horizontal line in figure 4.22.



Afbeelding 4.22 - De 9 godheden op bladzijde 1 van de Codex Laud in een horizontale lijn geplaatst.

It is not clear what the role of the death god is in this pantheon other than a stream of dark matter erupting towards the god of fire. What is immediately noticeable is that the composition and order of this series of 9 or 10 deities differs from the usual. The god of fire at the beginning as 1st and the rain god as 9th and also last of the series, are in the right place. The sacrificial knife god (Itztli) does belong to the fixed composition but is not in the usual place because in the fixed order it is the 2nd deity and in the Codex Laud it is 3rd.

If both the Codex Fejérváry-Mayer and the Codex Laud were indeed made by the same artist then both date from around 1200-1250 CE. Yet it is curious that if the creator of the Codex Fejérváry-Mayer also made the Codex Laud, he or she would not have used the same set of deities. This may indicate that we are dealing with two different artists or with two different forms of the counting of days. This codex does not lack a, albeit limited, Maya influence because the characteristic notation of numbers in the form of stripes and dots has been applied to three pages.

It is striking that in this series of deities there are no fewer than four different appearances of the Aztec deity “Smoking Mirror” (Tezcatlipoca) (figure 4.23). This concerns the sacrificial knife god Itztli, the white and red form of the “smoking mirror” and “our lord the skinned”.

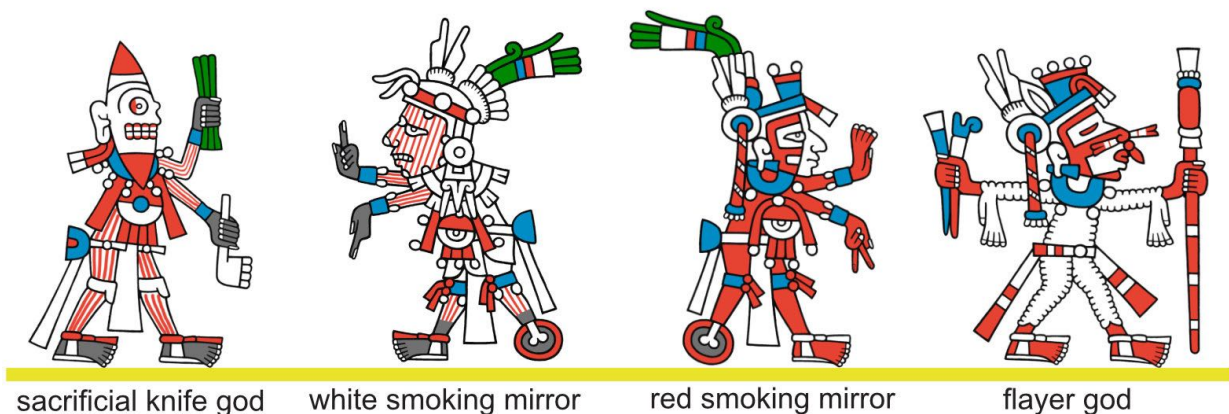


Figure 4.23 - The 4 manifestations of the Aztec deity Tezcatlipoca.

The red smoking mirror is the mutilated Xipe Totec and the white smoking mirror the mutilated Tlahuizcalpantecuhtli (Neumann 1976: 255; Olivier 2003: 302 images b and c). Incidentally, the more famous form of Xipe Totec, Our Lord the Skinned, with its well-known rattling staff (*chicahuaztli*) is also included as the 8th deity in the series of the 9 deities depicted.

The 5th god is the wind god (Ehecatl) in the guise of the "feathered serpent" (Quetzalcoatl). According to Miller and Taube (1993: 84), as the 2nd of the 20 day signs, the wind god is the patron of the second 13-day period beginning with the day name 1 jaguar. But he is best known as an important creator god and folk hero. He was known to the Mixtecs as lord 9 wind.

Although 4 of the 9 fixed deities of the night are present in the scene (god of fire, sacrificial knife god, death god, and rain god), this series of 9 deities clearly does not conform to the usual composition and order that we have encountered in the pictographs discussed above.

Tonalamatl Aubin No. 20

The Tonalamatl Aubin No. 20 (Fonds Mexicain 20) belongs to the Mixtec manuscripts group. This document consists of one sheet of deerskin of $\pm 91 \times 51$ cm and is called the Aubin Goubil collection no. 20 by Seler (1906 volume II: 101-103). Boone (2007: 120) calls it Aubin No. 20. Although the original Tonalamatl Aubin No. 20 is badly damaged, fortunately we have a good copy that was made before damaging the original. According to Nowotny (2005: 207), the Tonalamatl Aubin No. 20 has a Mixtec past while Boone (2007: 240) mentions that it belongs to the Borgia group.

At first glance, this scene appears to be structured in the same way as page 1 of the Codex Fejérváry-Mayer and pages 75 and 76 of the Codex Madrid. But appearances can be deceiving. Although this is a 260-day count (*tonalamatl*), however, the fixed series of 9 deities is missing and has been replaced by 10 other deities divided into 5 pairs. The 260-day count is actually composed of a 5 x 52-day count with each of the five scenes representing a 52-day period (Nowotny 2005: 244). In addition, the iconography of each of these 5 scenes also points to one of the directions, but in this case as geographical places.



Figure 4.24 - A painted copy of the original Tonalamatl Aubin No. 20 in the Bibliothèque Nationale in Paris.

For the count of the 5 x 52 days or 1 x 260 days, the 5 day names in the border and the double circle in the middle are used. These are the names of a group of 5 gods called the Macuiltonaleque. They are the spirits of warriors who accompany the sun as it rises in the east until noon. The names of these 5 gods are '5 lizard' (right), '5 vulture' (top), '5 deer' (middle), '5 flower' (left) and '5 grass' (bottom) (see figure 4.25).

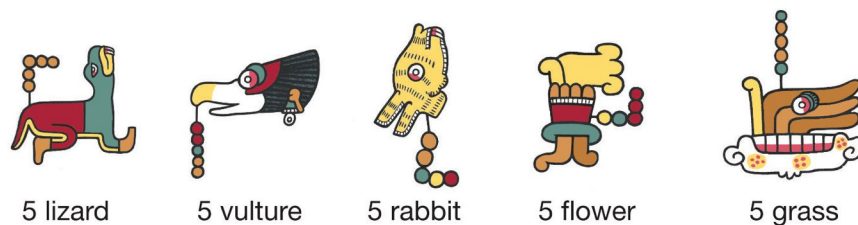


Figure 4.25 - The five day signs in combination with the number 5 representing the 5 personal names of the male deities (Macuiltonaleque).

The female deities belong to the Cihuateteo believed to be the ghosts of women who died while pregnant. They would also accompany the sun as it set in the west. Their personal names are shown next to their leg by a day sign with the day number 1. The names of these 5 women are '1 deer', '1 rain', '1 monkey', '1 house' and '1 eagle' (see figure 4.26).

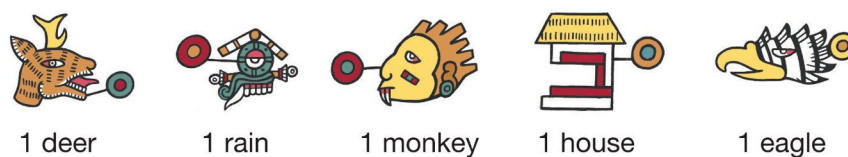


Figure 4.26 - The five day signs in combination with the number 1 representing the 5 personal names of the female deities (Cihuateteo).

When we plot the personal names of the male deities in the overview of the full 260-day count (20 series of 13; figure 4.27), we see that in column 5 (red circle) the relevant day signs lizard, vulture, rabbit, flower and grass are arranged in an order dictated by the fixed pattern of the 260 day signs (red boxes). The number of days between the 5 day names is always 52 (4×13), so a total of 5×52 is 260 days.

The same goes for the 5 day names 1 deer, 1 rain, 1 monkey, 1 house and 1 eagle, of the female deities in column 1 (green circle, figure 4.27). Again, there is a particular order dictated by the fixed pattern of the 260 day signs. And here too there are 5 periods of 52 (4×13) days (green boxes).

From the 260-day count pattern of the Aubin 20, it is clear from the prominent placement of the day signs of the male deities in the setting of the scene that they play a leading role in the count. These personal names are listed within the count as the day names 5 lizard, 5 vulture, 5 rabbit, 5 flower and 5 grass. From the position within the fixed, unchanging pattern of the 260 day signs (figure 4.27), it appears that the Aubin 20 count starts at 5 lizard on the right (red arrow column 5 in figure 4.27). The order is dictated by both the fixed pattern of the day signs and the 52-day periods. Based on these driving factors, the reading order for the 5 male deities can only be as shown in figure 4.28.

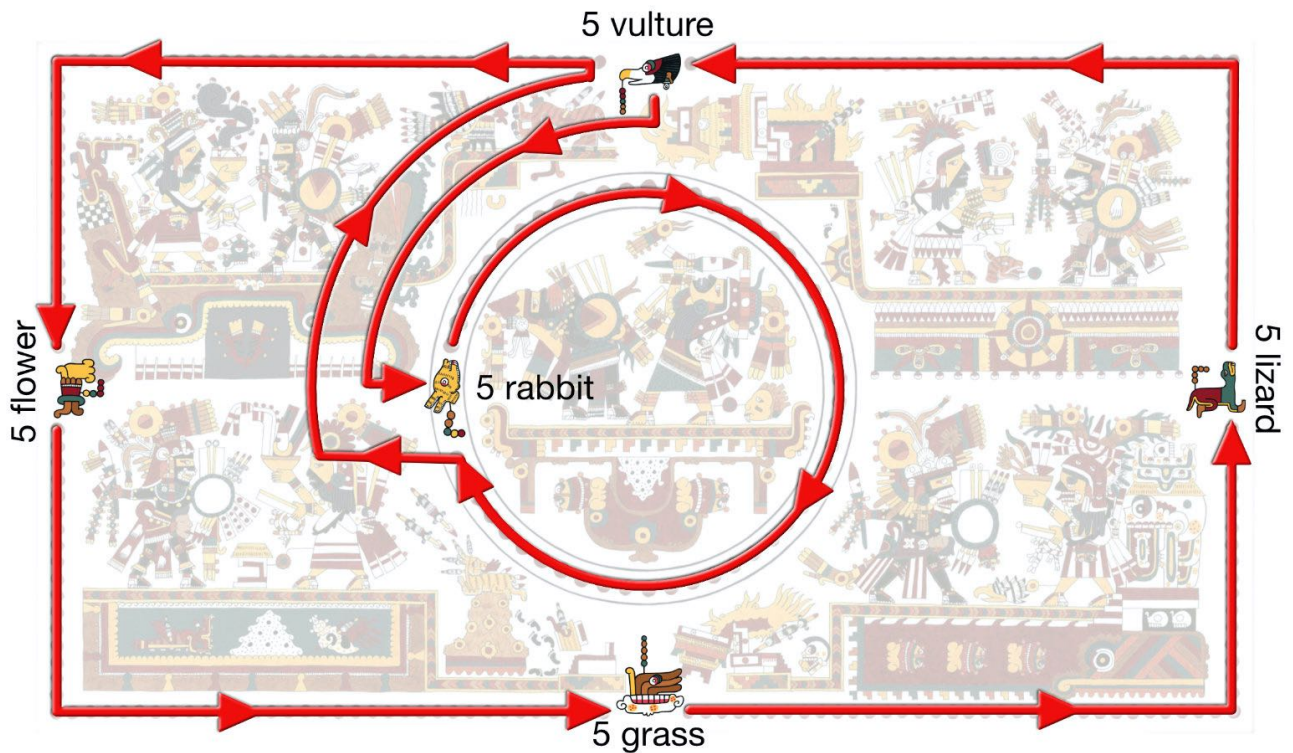


Figure 4.28 - Pattern of the reading order of the 260 days in the form of the 5 x 52 day count as applied for the 5 male deities on the Tonalamatl Aubin No. 20.

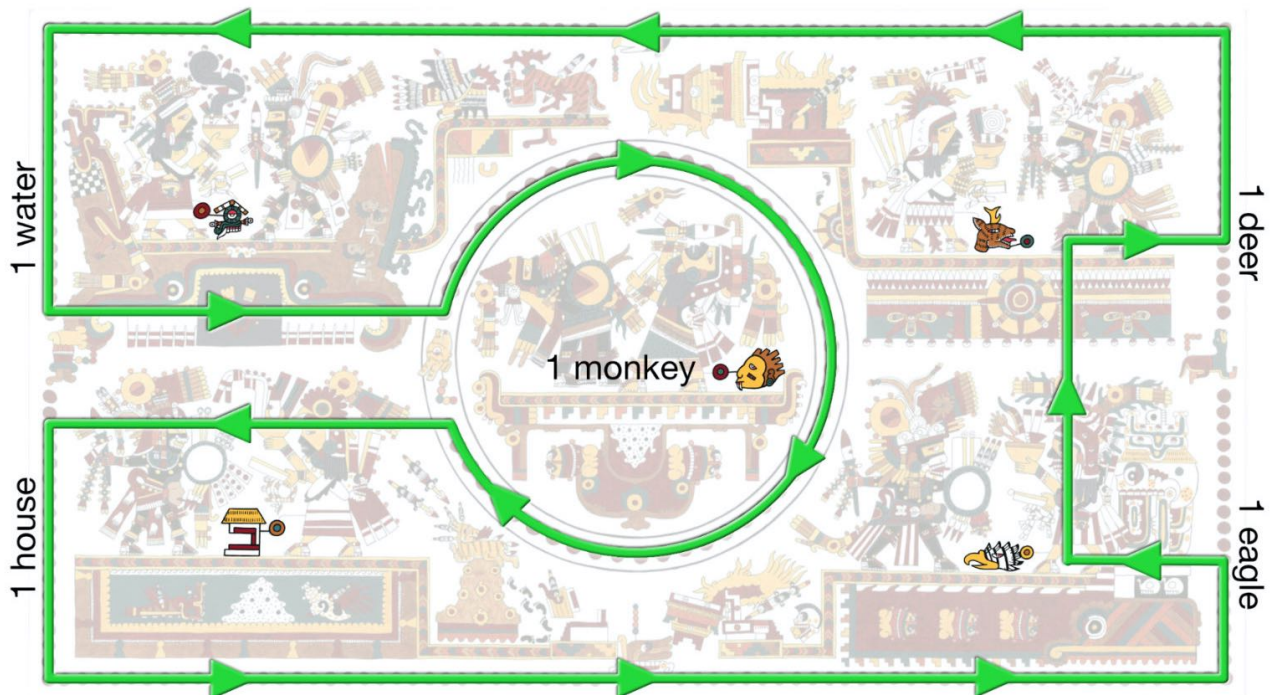


Figure 4.29 - Pattern of the 260-day reading order in the form of the 5 x 52-day count as applied for the 5 female deities on the Tonalamatl Aubin No. 20.

There is no demonstrable evidence that the 5 x 52 days were not applied according to the standard order of the day signs. So for both the male and the female deities a counterclockwise reading direction following the fixed order of the day signs. Nowotny (2005: 160) and Boone (2007: 119), for example, assign to the 5 groups of deities in addition to 5 place names, the 5 known directions east, south, west, north and center.

The accompanying iconography, which is strongly reminiscent of the Mixtec codices Zouche-Nuttall (C. Nuttall) and Vindobonensis Mexicanus I (C. Vienna), clearly indicates that these are conquered villages, which are depicted by burning houses, with spears pierced temples and all kinds of sacrificed animals including eagle, jaguar and rabbit. This is further enhanced by the so-called "war bands with chevron characters" on which the 5 pairs of deities stand. The whole scene depicts strife, violence and conquest. The total scene has a clear Mixtec character.

In summary, it can be said that the scene on this sheet of the Tonalamatl Aubin 20 depicts a 260-day count in the short 5 x 52-day form with a counterclockwise reading direction, but does not include the 9 deities of the night.

Codex Porfirio Díaz 33

The Codex Porfirio Díaz 33 consists of two themes. The first concerns 4 deities who occupy most of this scene. The deity at the bottom right is enclosed in a red frame. The second theme is the fixed order of the 20 day signs that also includes a 260-day count in the form of a 4 x 65-day count in a particularly creative way.

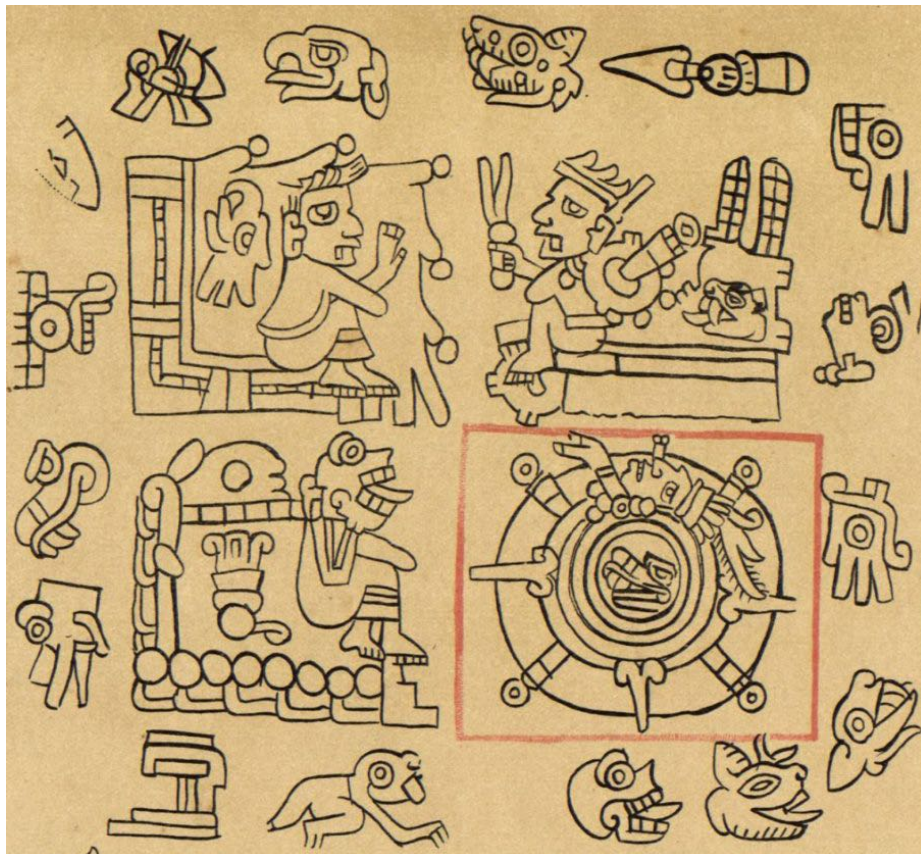


Figure 4.30 - Codex Porfirio Díaz.

The 4 deities

In the Codex Porfirio Díaz 33, 4 deities, of which perhaps 1 is an old priest (Nowotny 2005: 47, 48, 158, 159), are depicted instead of the usual 9. But apparently this are 4 important deities that also all belong to the fixed series of 9 deities. This concerns the sun god at the bottom right in the red frame, the old priest (?) at the top right, the old water goddess at the top left and the death goddess at the bottom left. That the 2 deities at the top are old can be deduced from the tooth that is visible in the corner of the mouth. I myself suspect that this is the primal couple from which all deities descend. In all old Mexican manuscripts this old age is portrayed in more or less the same way.

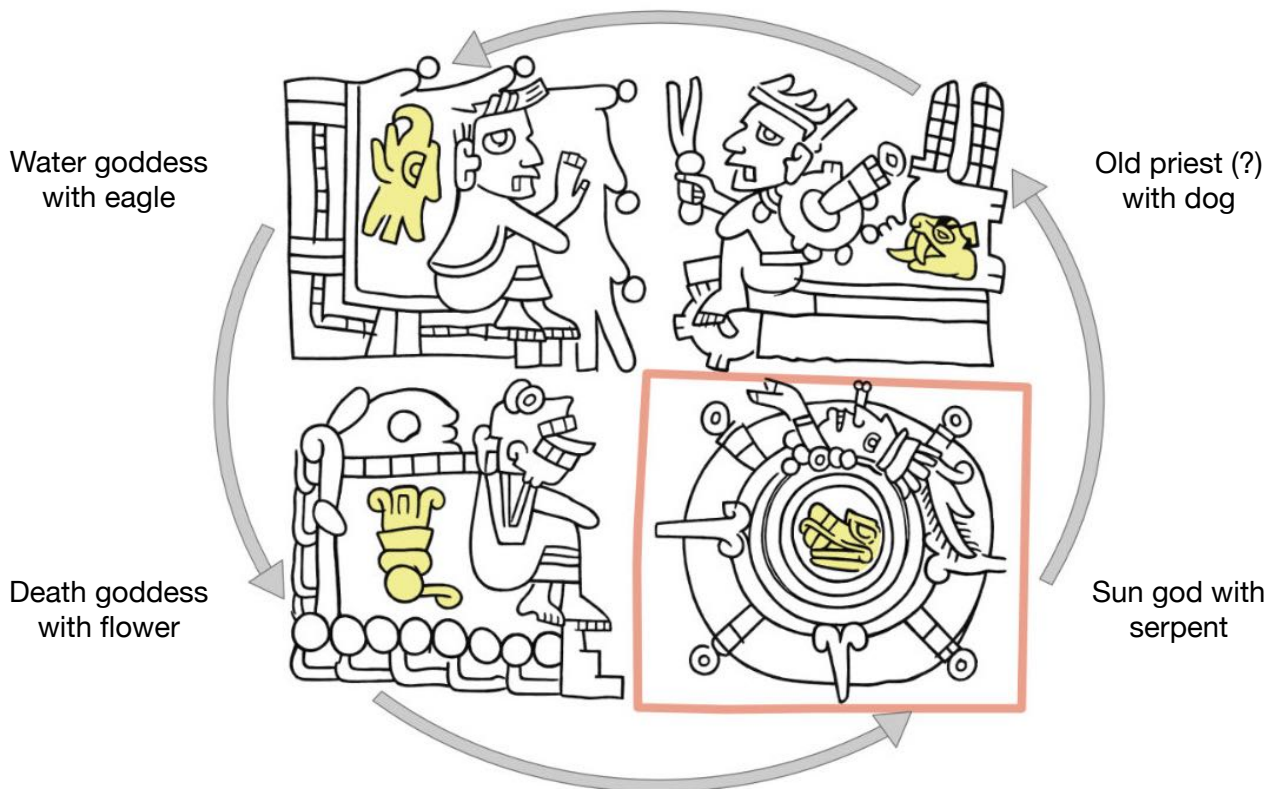


Figure 4.31 - Reading direction dictated by the sun god with the day sign crocodile within the red box as the starting point and the order of the enclosed 4 day signs (figure 4.33) in the reading direction counterclockwise.

In this scene the fixed order of 20 fixed day signs is present, of which the 4 innermost signs are connected to the 4 depicted deities (figure 4.31). When these 4 day signs are plotted in the full 260-day count patron (figure 4.33), it turns out that they are exactly 65 days apart, indicating a 4 x 65-day count with 4 quarters occupied by 4 deities. The order of the 20 day signs together, starting on the left with crocodile, has a counterclockwise reading direction. In figure 4.32, all the day signs of the Porfirio Díaz 33 have been placed in a horizontal row (under) with the usual fixed order of 20 day signs for comparison (up). The 4 inner day signs serpent, dog, eagle and flower are shown on a light yellow background.



Figure 4.32 - The 20 day signs of the Porfirio Díaz 33 in a horizontal row (bottom) with in the top horizontal row for comparison the usual fixed order of 20 day signs.

Since the day sign serpent is first in the counting because of its position in the circle of the sun god, it must be counted from here. For the sake of convenience, column 5 has been chosen so that the order of the other 3 day signs in the same column is immediately visible (figure 4.33).

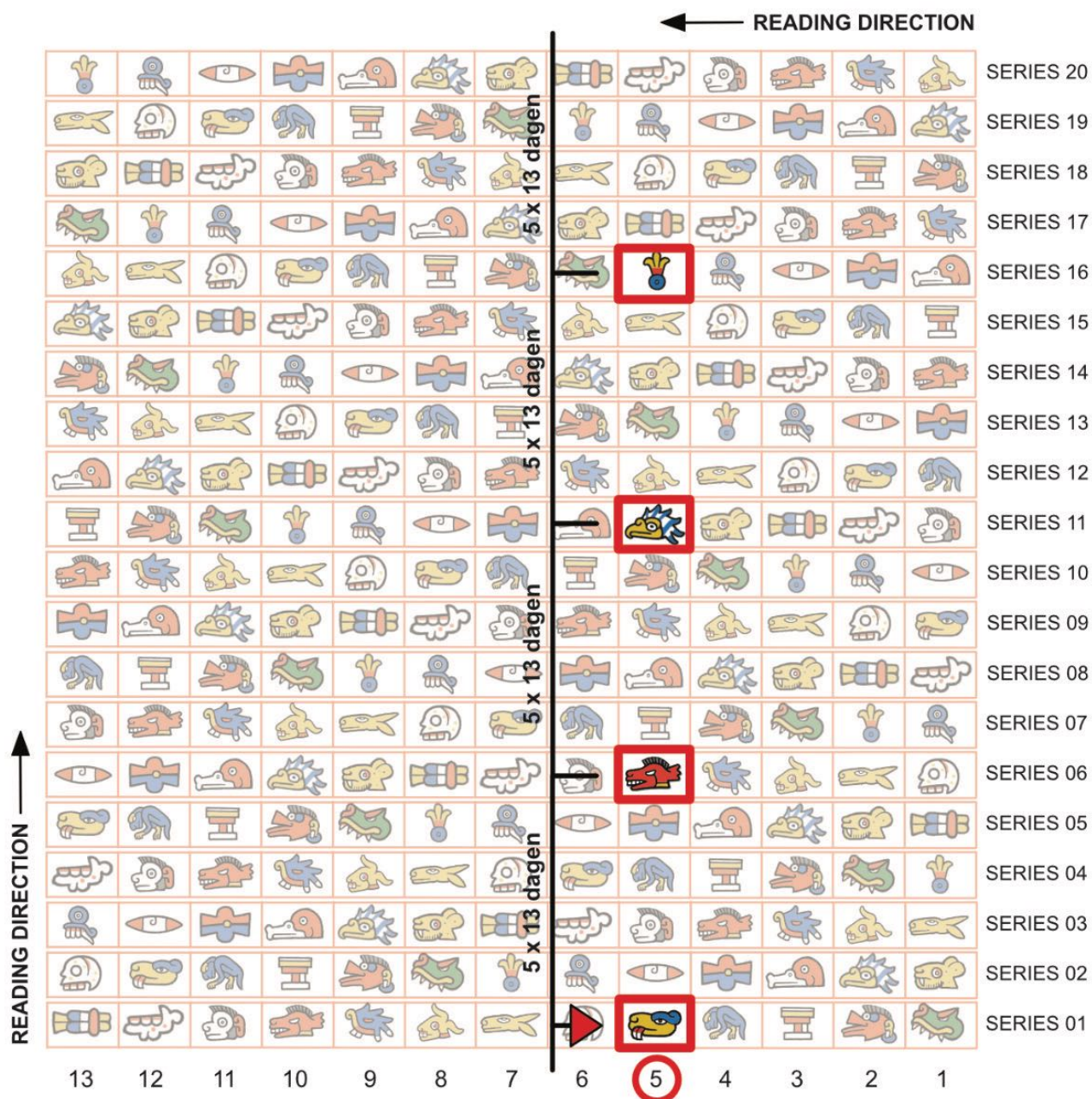


Figure 4.33 - Diagram 260-day count with the 4-day signs of the Porfirio Díaz 33 in the form of a 4 x 65-day count.

In summary, it can be stated that this scene in the Porfirio Díaz 33 does include a 260-day count in the form of 4 x 65 days, which also results in a division into 4 quarters with 4 deities. However, the fixed sequence of the 9 deities of the night is missing.

4.5 Conclusion composition and reading direction 9 deities

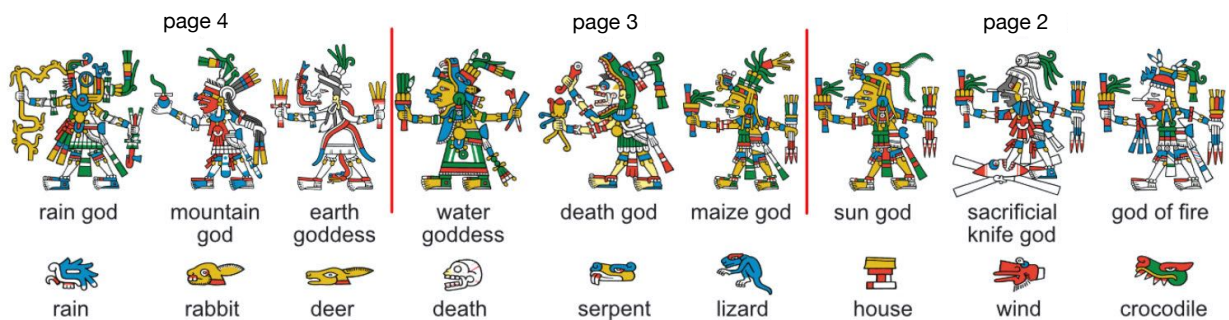
The manuscripts discussed above do show that the reading direction in these manuscripts is predominantly counterclockwise. But reading directions from right to left, from bottom to top and vice versa also occur. From this it can be deduced that the reading direction in which the 9 deities are represented is arbitrary and apparently dependent on the circumstances. It seems that the goal, the desired spatial layout, the available space and the creativity of the inventor played a more decisive role in this.

When we look at the above discussed ancient Mexican manuscripts from the Aztec era in which the composition of the 9 deities of the night occurs, it appears that most of them have the same composition. In addition, it is also clearly confirmed that the reading direction of the 9 deities in the examined manuscripts is always the same as that of the day signs.

Moreover, in a number of the previously discussed manuscripts it has been found that in 9 of the 10 manuscripts discussed, not only the composition but also the order of the 9 deities is always the same. These are shown in an overview in figures 4.35 A, B and C. Here it can also be clearly seen that the order of the deities and the order of the day signs in the manuscripts discussed above are always in the same reading direction.

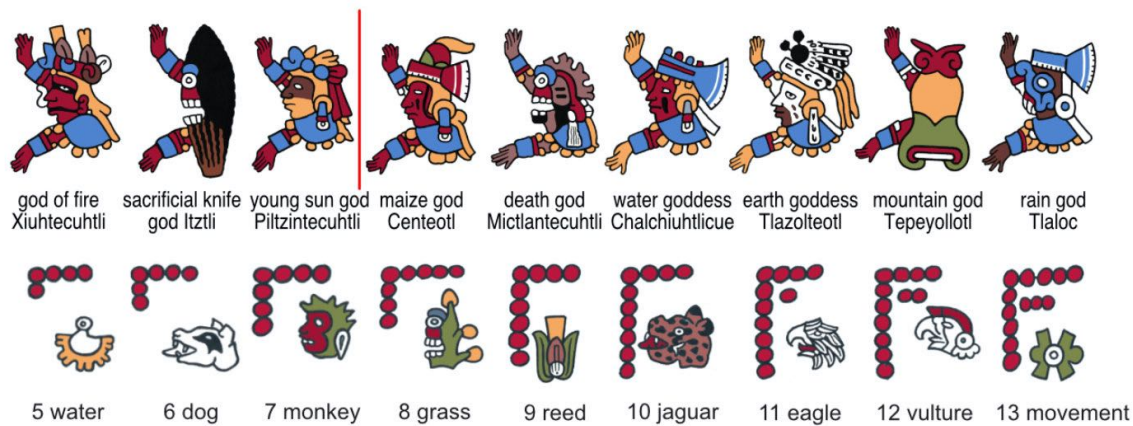
Because the composition and order of the 9 deities in the codices Laud, Tonalamatl Aubin No. 20, and Porfirio Díaz 33, is clearly different then the usual composition and order of the 9 deities, these three will be left out of further consideration.

The question now is whether this fixed order has also been applied to the 9 deities on page 1 of the Codex Fejérváry-Mayer.



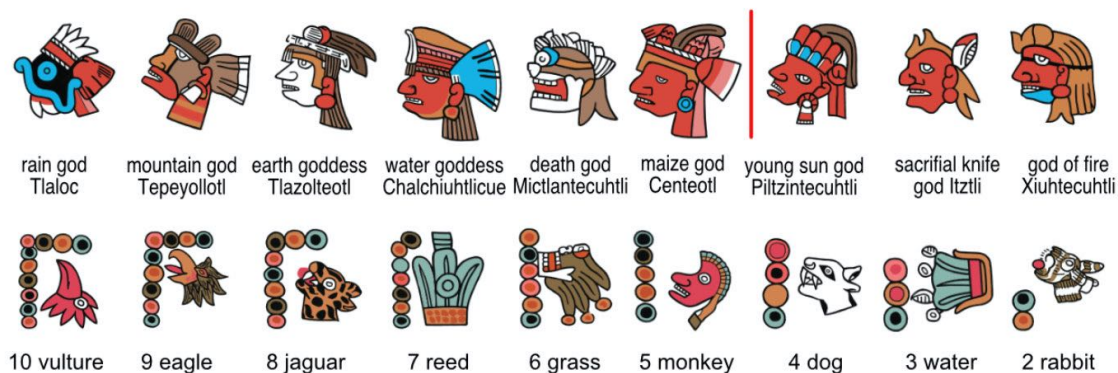
Codex Fejérváry-Mayer pages 2, 3 en 4

← READING DIRECTION



READING DIRECTION →

Codex Borbonicus page 9



Codex Aubin page 3

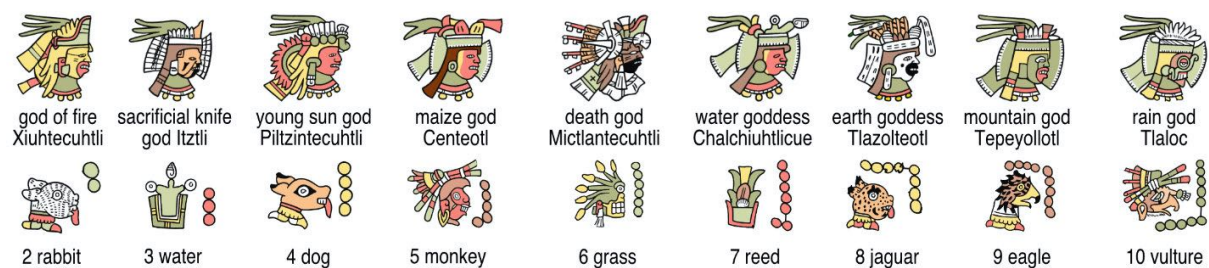
← READING DIRECTION



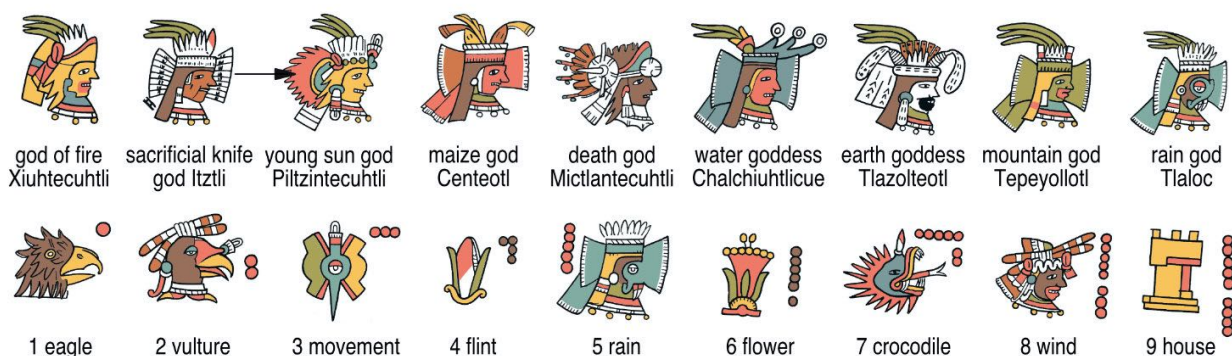
Codex Borgia page 14

← READING DIRECTION

Figure 4.35 A - Overview composition, order and reading direction of the 9 deities of the night in the previously discussed manuscripts.



READING DIRECTION → **Codex Telleriano-Remensis pages 9v-10r**



READING DIRECTION → **Codex Vaticanus A 3738 pages 31r en 32v**



READING DIRECTION → **Codex Cospi pages 1-8**



READING DIRECTION → **Codex Vaticanus B 3773 pages 19-24**

Figure 4.35 B - Continued overview of the composition, order and reading direction of the 9 deities of the night in the previously discussed manuscripts.

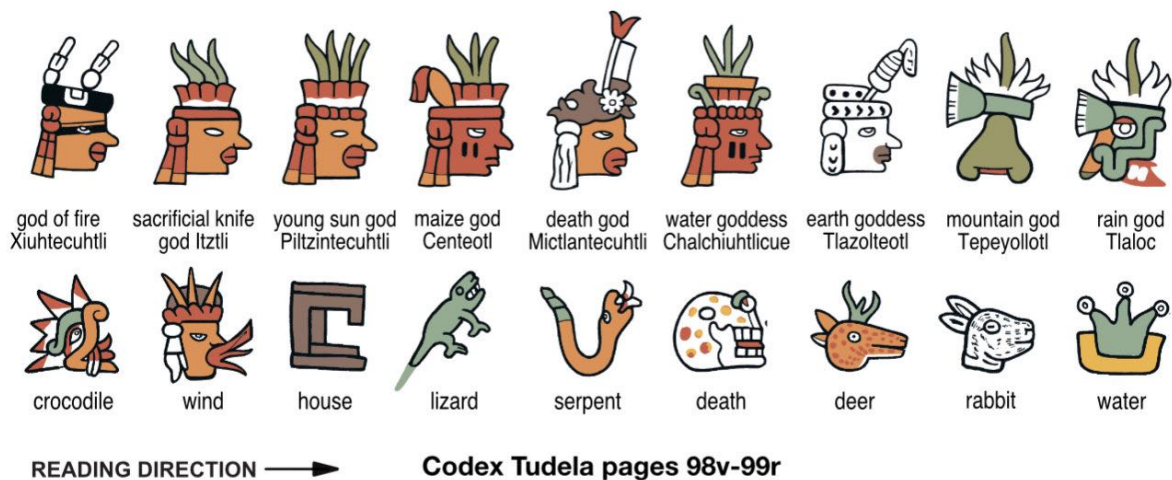


Figure 4.35 C - Continued overview of the composition, order and reading direction of the 9 deities of the night in the previously discussed manuscripts.

4.6 Order of 9 deities page 1 Fejérváry-Mayer

Eduard Seler (1901: 22) concluded in his discussion of the Fejérváry-Mayer that the 9 deities on page 1 of the Codex Fejérváry-Mayer are present in the correct composition but in the opposite order. In the previous discussion it has been shown that indeed all 9 deities from the fixed series are present. According to Seler, however, they do not follow the reading direction of the day signs of the 260-day count, so to the left (counterclockwise), but the opposite reading direction, so to the right (clockwise).

The next step, therefore, is to check whether the order of the 9 deities of the night on page 1 of the Codex Fejérváry-Mayer conforms to this fixed pattern. Based on this, it can then be determined whether or not they are in the same reading direction as the day signs of the 260-day count.

As a first step are the 9 deities of page 1 of the Codex Fejérváry-Mayer, in the composition and order present here, redrawn and then placed in a horizontal line (figure 4.36). In order to be able to judge in which reading direction they are displayed, these 9 deities were then placed in the two possible reading directions. The starting point here is that the central god of fire the starting point is for the orbit of the 9 deities of the night. This means once from top to left (counterclockwise, figure 4.36) as shown on pages 2, 3, 4, and once from top to right (clockwise, figure 4.38). Figure 4.37 shows the placement and order of the 9 deities in the reading direction counterclockwise (green) and clockwise (red).

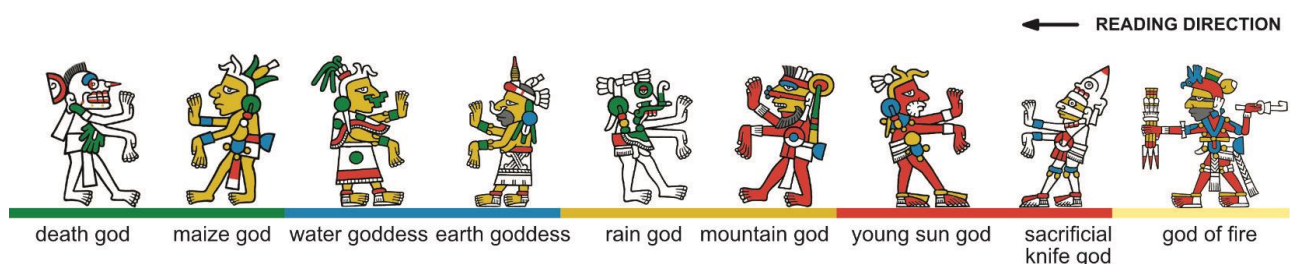


Figure 4.36 - The order of the 9 deities on page 1 according to the left or counterclockwise reading direction (green circle in figure 4.37)

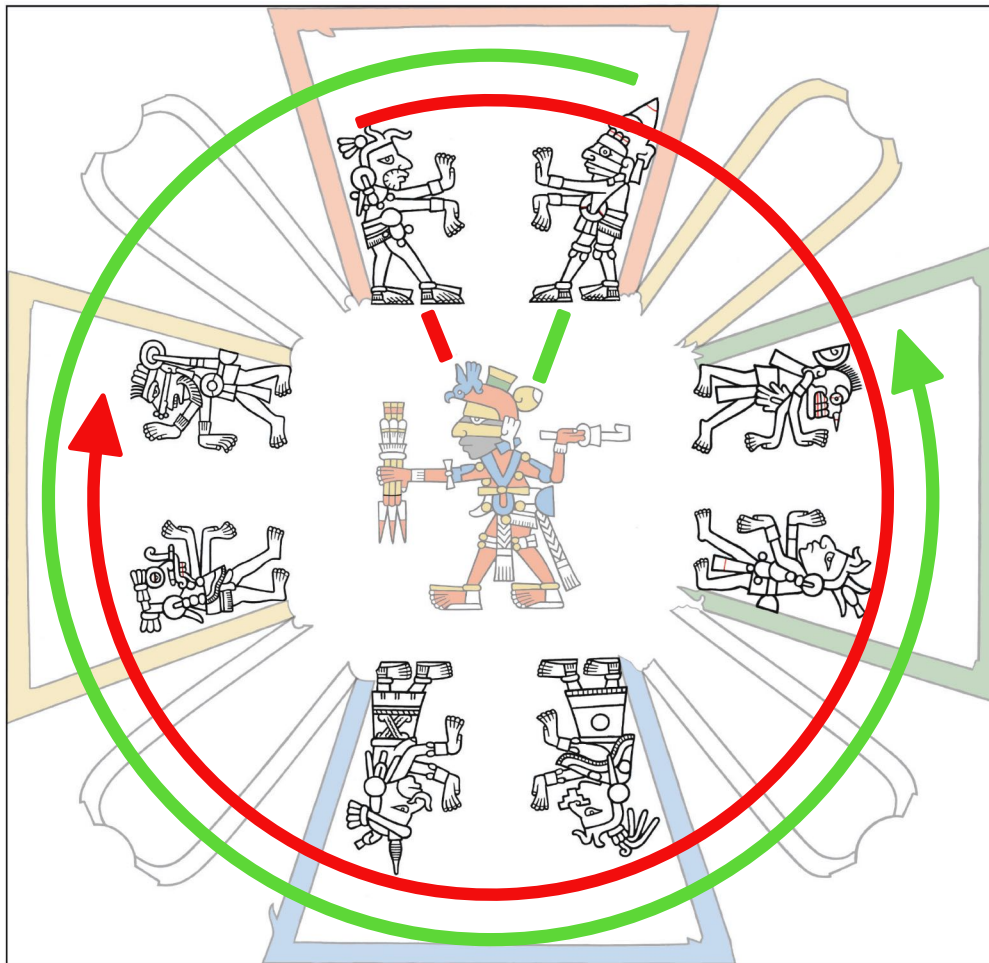


Figure 4.37 - Location of the 9 deities of the night on page 1 of the Codex Fejérváry-Mayer with the reading direction left (green) and right (red).

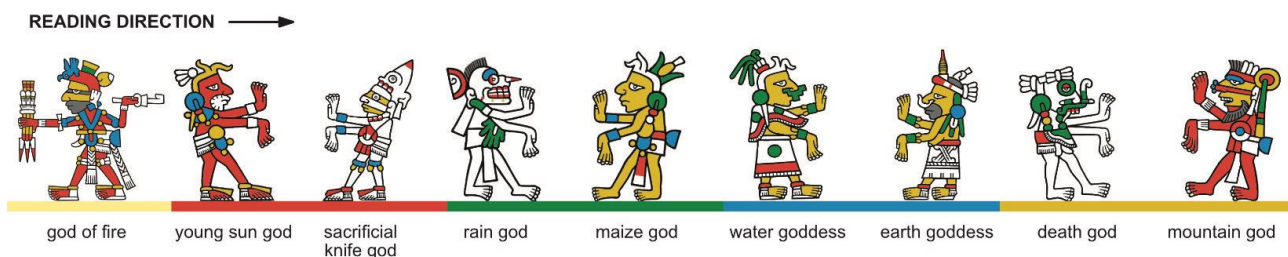


Figure 4.38 - The order of the same 9 deities on page 1 according to the right or clockwise reading direction (red circle in figure 4.37).

It has already been mentioned that all 9 deities from the fixed series are present. On the basis of the overviews in figures 4.35 A, B and C, it must now be determined which reading direction and order in which these 9 deities are depicted corresponds to the fixed order of the examples discussed above.

We have seen in figures 4.36 and 4.38 that the order of the 9 deities is determined by the reading direction. To be able to judge in which of the two reading directions the order most closely matches the fixed order, I compared both reading directions on page 1 with the fixed series of 9 deities as correctly represented on pages 2, 3 and 4 of the Codex Fejérváry-Mayer (see figure 4.39).

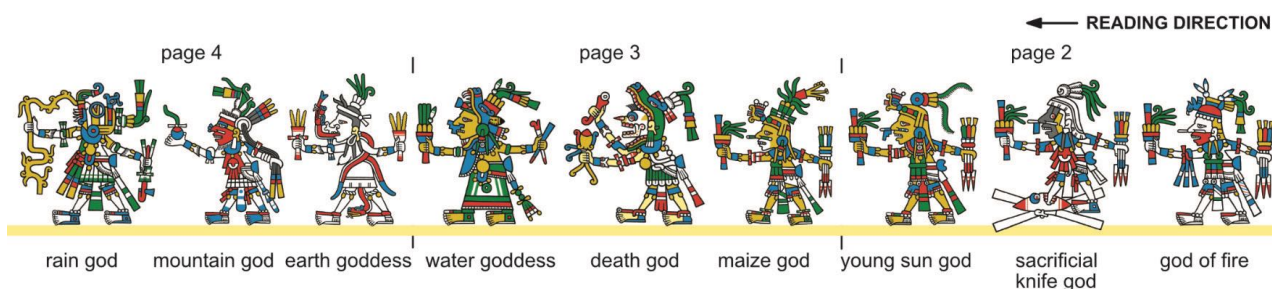


Figure 4.39 - The 9 deities as depicted on pages 2, 3 and 4 of the Codex Fejérváry-Mayer in the reading direction from right to left (counterclockwise). This serves as a reference for comparison with the reading direction on page 1.

The first comparison is that between the fixed composition and order of the 9 deities as depicted on pages 2, 3 and 4 of the Codex Fejérváry-Mayer and that of the counterclockwise reading direction of page 1. Both follow the same reading direction from right/top (red trapezium) to the left (see green circle figure 4.37). The differently colored bars under the 9 deities of the series on page 1 represent the colors of the four trapezoids (quarters) of page 1. As can be seen in figures 4.40 and 4.41, the differences and similarities in the depicted sequence of the deities are immediately noticeable.

Figure 4.40 - The 9 deities in the usual fixed order on pages 2, 3 and 4 (top row).

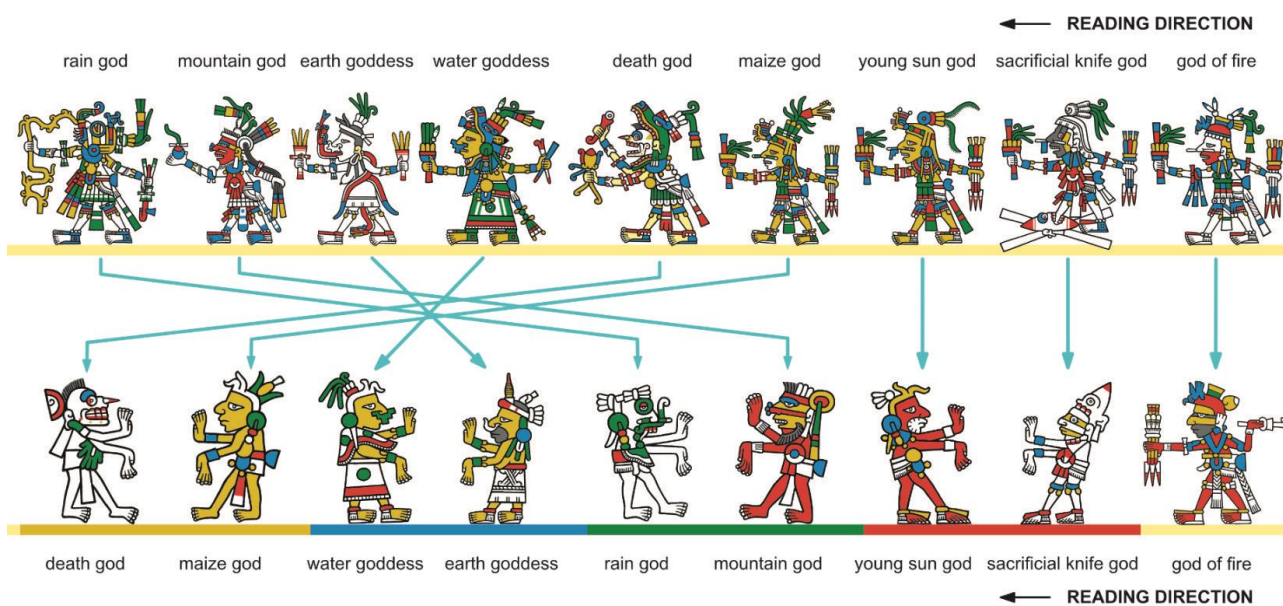


Figure 4.41 - The sequence of the 9 deities on page 1 according to the counterclockwise reading direction (bottom row; green circle figure 4.37).

The first three deities, god of fire, sacrifice knife god, and sun god, are in the correct order in this reading direction. The six remaining deities are indeed the correct deities, but none of them are in the usual fixed place.

For the comparison of the second reading direction, i.e. from left/top (red trapezium) to right (clockwise, see red circle in figure 4.37), the deities of page 1 are shown in the same order but reversed (figure 4.42, top row). This will put them in the same reading direction as that of pages 2, 3 and 4 (figure 4.43, bottom row). So both read from right to left (counterclockwise).

Figure 4.42 - The order of the 9 deities on page 1 according to the clockwise reading direction (red circle figure 4.37).

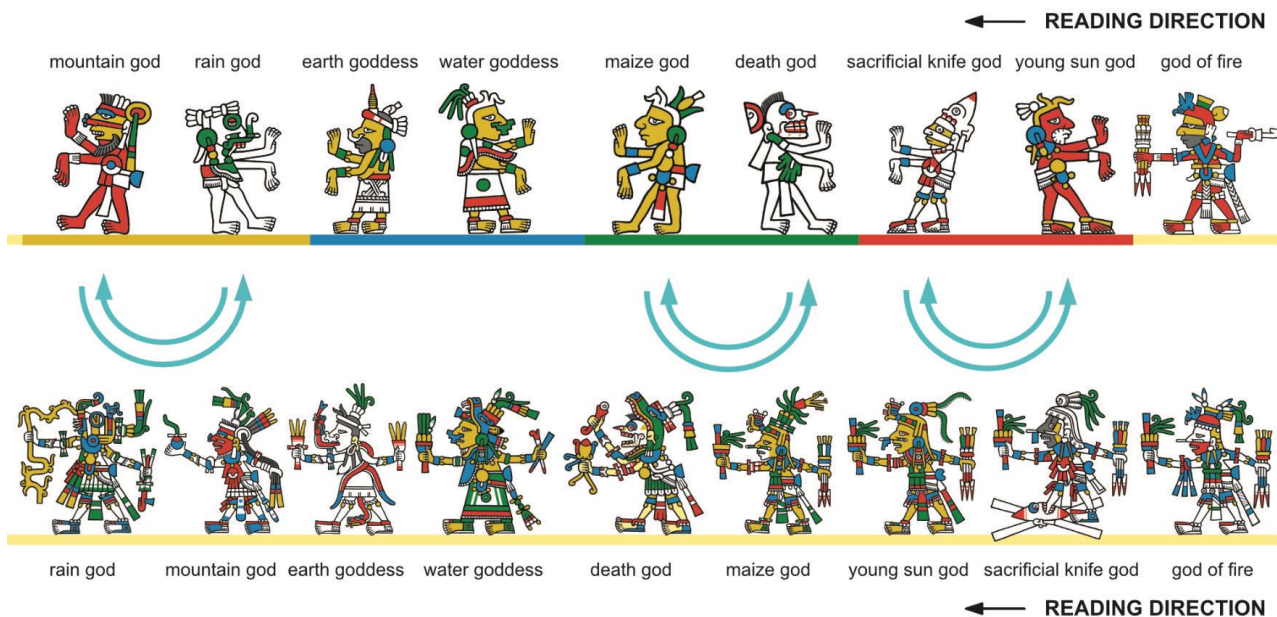


Figure 4.43 - The 9 deities in the usual fixed order on pages 2, 3 and 4.

This second comparison shows that the order of page 1, with the reading direction clockwise, largely corresponds to the usual fixed order. In three places the two deities have switched place. This is indicated in figures 4.42 and 4.43 with half, blue, circular arcs. However, as pairs they are in the correct order, with only the pair of the Water Goddess and Earth Goddess also being in the correct order. This also refutes the assumption of Vail and Hernández (2010: 318, 319) that within all pairs the order of the deities is shown counterclockwise, so that all pairs would have switched places, which is clearly not the case.

It is remarkable that of three pairs of deities, one is always predominantly white. From the way this is done, it can be inferred that the artist who drew and painted this image and the rest of the codex did so very consciously. Perhaps to emphasize a number of important features. Also in the detailed drawn 9 deities on pages 2-4 we find some white deities, although not all the same. Elsewhere, too, such white figures occur, such as in the Codex Laud page 1 or the Codex Zouche-Nuttall on pages 52 to 56, 58 to 60, 70, 76 to 78. This does not seem like a coincidence or mistake to be. Why these figures are white is a mystery, however. Incidentally, in the Codex Laud the apparently uncolored figures are not really white but striped with red and white, which is barely visible due to discoloration.

4.7 Conclusions order 9 deities page 1

From the foregoing comparisons, based on the visual observation discussed above, the following facts can be established:

1. the order of the 9 deities depicted on page 1 with a reading direction starting at the top with the sun god to the right (so clockwise), corresponds most closely with the usual fixed order in the old Mexican manuscripts; in three places the pairs have been interchanged, but they are in the right place as pairs;
2. with a reading direction to the left (counterclockwise), 6 of the 9 deities are not in the right order, and with 2 pairs they are also not in the right place;

3. although the clockwise reading is closest to the fixed composition and order of the 9 deities, this reading direction is opposite to that of the day signs of the 260-day count and therefore does not conform to the fixed, usual pattern;
4. however, the artist who made this codex must have been very well aware of the correct order of these 9 deities because he or she applied them in the fixed composition and order on pages 2, 3 and 4 in a reading direction from right to left (counterclockwise).

The above facts indicate a reading direction of the 9 deities from top to the right, so clockwise. The reading direction of the day signs of the 260-day count has been shown to be counterclockwise.

Based on these two reading directions, Eduard Seler (1901: 20, 22) rightly states that the reading direction does not conform to the fixed pattern of the same reading direction as the day signs of the 260-day count. The creator of page 1 would therefore have misplaced the deities, according to Seler. However, this is a prejudice and conclusion of Seler and presumably prompted by Western views. This choice can of course just as well be based on a philosophy unknown or incomprehensible to us. Whether it was a mistake or a deliberate choice on the part of the creator will unfortunately never be proven.

5 Trees, birds and sacrifices



On page 1 of the Codex Fejérváry-Mayer, in addition to the various 260 day counts and 9 deities of the night, 4 trees with special tree bases are also depicted. Trees are also common in other Mexican manuscripts. On page 1, each tree bears a horizontal arm on both sides with three side branches at the ends, each bearing leaves, fruit or flowers. The pattern of the trunk, branches and leaves or flowers is almost the same for all four trees. However, the interpretation of the different parts is always different for each tree. The individual trees, in turn, stand on different types of basis with special and characteristic meanings.

In ancient Mexican manuscripts, trees are sometimes associated with certain deities, directions and colors. As will become apparent, the Maya had a different view of this from the later Aztecs and their contemporaries.

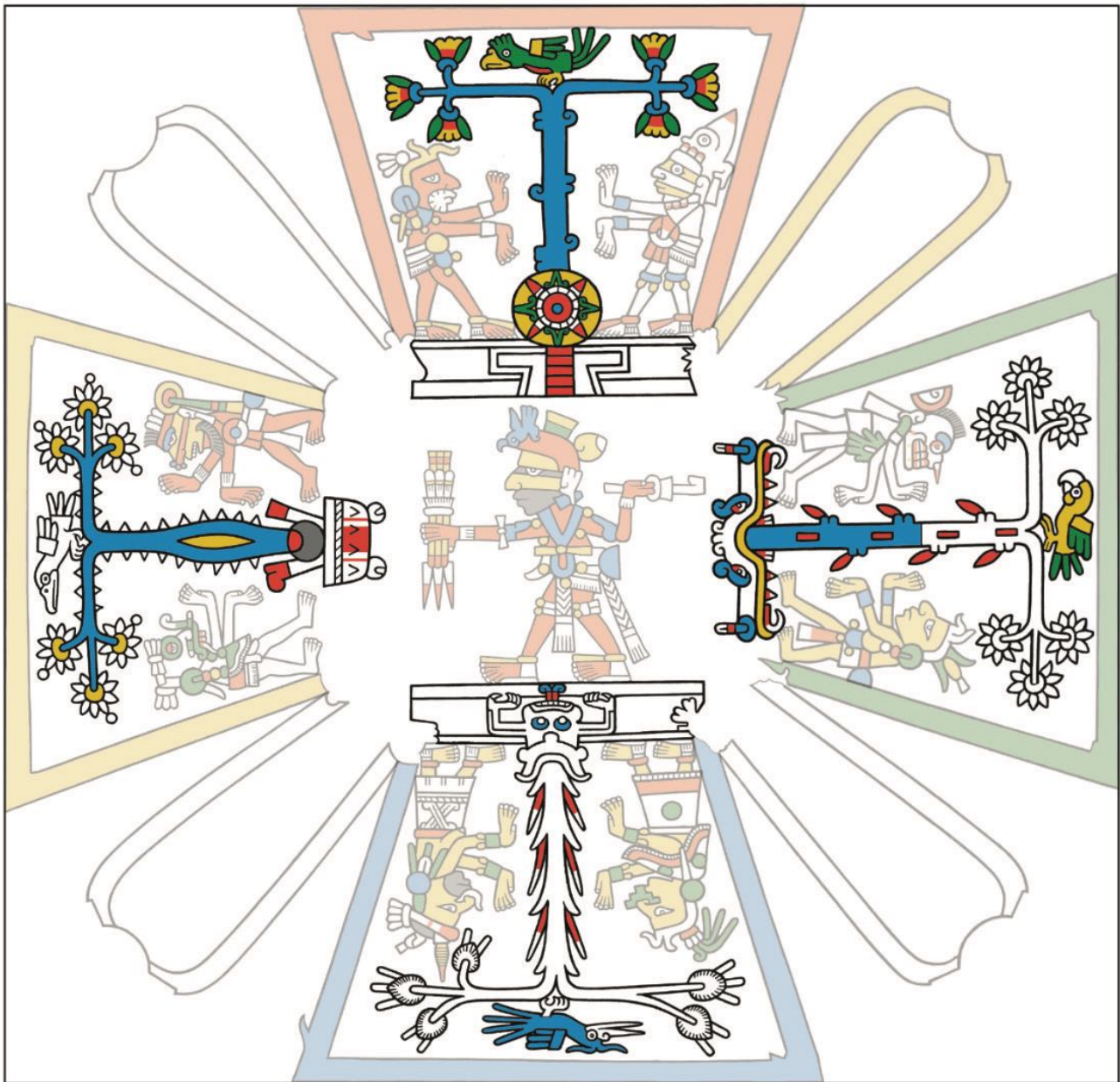


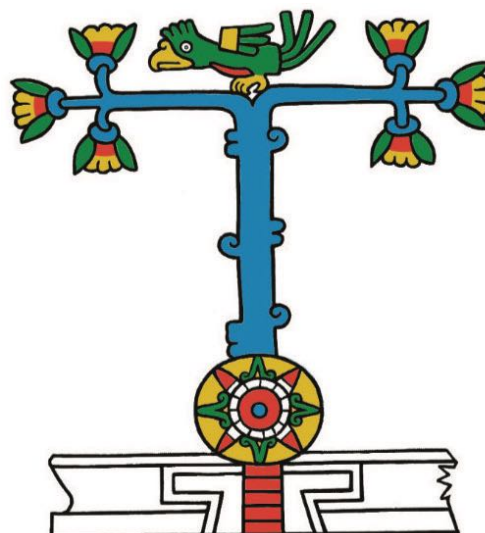
Figure 5.1 - The four trees with birds and tree basis.

Birds are depicted on the top of each of the 4 trees. The base of each tree is depicted in a characteristic image that we regularly encounter in the various manuscripts and that are usually related to all kinds of sacrifices (figure 5.1). According to Eduard Seler, these symbols should be related to one of the four directions. Often these directions are equated with our modern compass directions, but that was definitely not the case in the days of the ancient Mexicans. More about this in chapter 6.

As an experienced ecologist and illustrator, I am convinced that the artist who drew this work of art certainly did not intend to draw natural, recognizable tree different types of trees, according to the particular deity, color and direction. It seems that the artist was guided by a creative image of four sacred or useful trees.

5.1 The blue tree above

The blue-colored tree at the top inside the red trapezium, with three flowers at each end of the branches, is an unknown species. Since specific characteristics are lacking, it seems that the only point here is to identify a tree. The iconographic feature that indicates that this is a tree is the knobs and curls along the trunk. This is a very common way of representing hard and raw materials in ancient Mexican manuscripts. In almost all ancient manuscripts, besides on tree trunks, they occur frequently on bones, shells, hills and mountains (see figure 5.2), so all types of hard and rough materials.



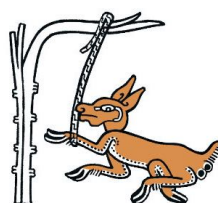
Shell - Borgia 63



Bone - Fejérváry-Mayer 23



Boom - Dresden 55



Tree - Madrid 46



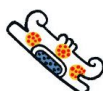
Tree in hill/cave
Selden 5



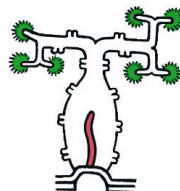
Shell - Nuttall 90



Bone - Grolier f



Bone - Borgia 26



Tree - Vienna 50



Hill/mountain/place name
Nuttall 3



Shell - Vienna 44



Bone - Nuttall 61

Figure 5.2 - Examples of applying knobs and curls to objects with hard, rough surfaces such as shells, bones, trees and hills, mountains and caves.

Iconographically, the six flowers of this blue-colored tree have more or less a standard shape that occurs in various places in the manuscripts. The tree trunk, branches and flowers do not have such characteristics that a specific species can be derived from them.

The tree stands on a kind of temple podium or altar with the well-known sun disk at its base, which is depicted in almost the same way in all ancient manuscripts. This is the symbol of the sun god. According to Seler (1901: 6), this is symbolically the temple or house from which the reborn young sun god emerges every day, the "house of the sun," similar to what we call the sunrise.

The bird in the top is the very characteristic quetzal (*Pharomachrus mocinno*) with beautiful green plumage that was much appreciated by the rulers. The long tail feathers in particular were particularly popular for making all kinds of decorations such as headdresses.

The quetzal appears regularly in most of the surviving ancient Mexican manuscripts. It is really a universal type that is almost always portrayed about the same. Figure 5.3 shows some examples of how this beautiful bird was depicted by the creators of the manuscripts. A timeless basic shape with individual nuances from the creators of these drawings.

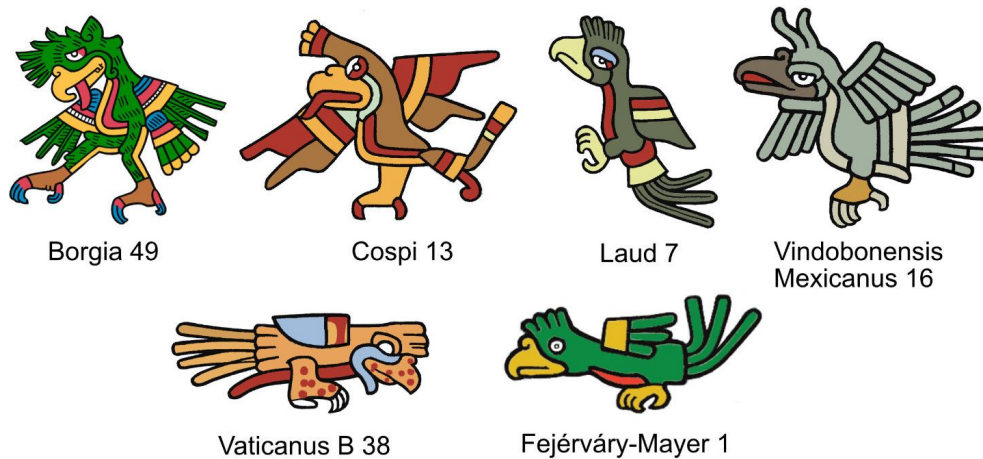


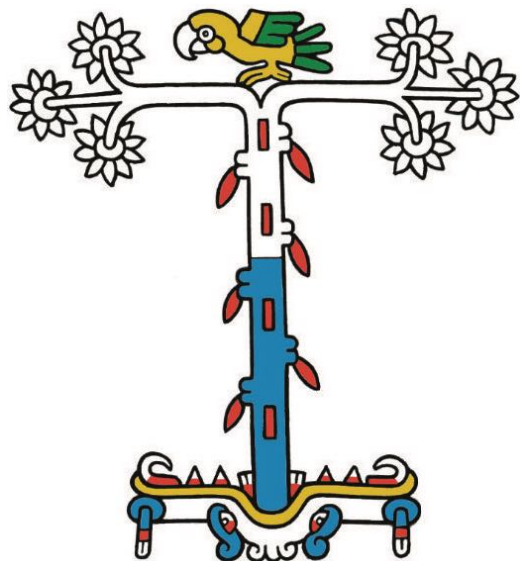
Figure 5.3 - Examples of the design of the quetzal in various ancient Mexican manuscripts.

5.2 The blue-white tree on the right

The blue-white tree in the green trapezium on the right has two remarkable features from an iconographic point of view. The first is the presence of a number of small semicircular protuberances along the trunk, which means that it is indeed a tree with its hard rough bark.

The second feature is the presence of the striking, red, oval protrusions hanging from the trunk. This undoubtedly points to the cacao tree characterized by the striking, reddish-brown, hanging pods that contain the cacao beans (figure 5.4) and were used to make the divine cacao drink.

The tree drawn here rises from the mouth of the earth crocodile, symbol of the fertile mother earth.



The cacao tree is a tropical tree that grows between 20° N and 20° S and is very sensitive to wind and strong sun rays. This tree species is widely distributed from southeastern Mexico to the Amazon River basin in South America. It does especially well in the shade in an evenly warm and humid climate. The cacao tree blooms all year round with the flowers growing on the trunk and large branches and grows between 4.5 and 8 meters high and can be over 50 years old. The official name of this tree is "*Theobroma cacao*" which literally means "food of the gods". The Maya called it *kakaw*. The cacao tree begins to produce flowers by the age of four and continues to flower continuously throughout its life. Because the tree blooms all year round, it also constantly bears flowers as well as ripe and unripe fruits. There is no direct connection to be discovered between this tree species and a particular main direction.



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Figure 5.4 - The unmistakable cacao trees with the sloping reddish to brown-red cacao pods against the trunk.

The pods of the cacao tree provide two important ingredients. These are the beans themselves, which served as a means of payment, for example, and the enveloping pulp that was fermented into a highly valued alcoholic drink. This luxury drink was highly appreciated for its high pleasure value and its social significance at elite parties and rituals (Smith & Berdan 2003: 125).

The seeds of the cacao tree are spread by bats, monkeys and all kinds of rodents including squirrels. These animals are therefore regularly seen in images in which they hold the cacao pods.

Seler's (1901: 14) assumption that the scorching heat, palms, parrots, and cacao must be associated with the southern quarter, is in part consistent with the actual growing site conditions of the cacao tree. However, this valuable tree species cannot tolerate heat from direct sunlight and is mainly found in shaded, moist locations near water. There is not a single indication in the literature that points to a connection between the cacao tree and a specific spatial indication. The spread of this cacao tree was therefore limited, making the drink, pods and beans a valuable commodity (McNeil 2006: 8).

The bird in the top of the tree

Seler (1901: 8) calls this the tree of the south and, according to him, can be referred to as *tozquasuitl*, or *cochoquaitl*, or *aloquaitl*. He explains this by the presence of the yellow-green parrot-like in the crown and the assumption that *toztli* stands for the yellow-green parrot. That is why Seler calls this the "yellow-green parrot tree" with the direction south. The yellow-green parrots themselves are called *toznene* and *cochotl*, according to Seler. However, I have not been able to discover any relationship between this tree species and a yellow-green parrot.

The bird in the top of the cacao tree does indeed have the characteristic beak of a parrot-like. It is a species with specifically green wings and a yellowish colored body. It is the same bird as in the top right arch with the year bearer rabbit on its back (figure 5.5 center). Since this bird species occurs several times in the native pre-Hispanic manuscripts, it seems that this bird species must have had some meaning in ancient Mexican culture. Because also on page 34 of the Codex Fejérváry-Mayer (figure 5.5 'Fejérváry 34') a very similar bird appears, but there with a red band at the top edge of the wings and tail. This bird species is also present in the Codex Borgia on page 71 and in the Codex Laud on page 10 (figure 5.5).



Figure 5.5 - Parrot-like bird, possibly the Yellow-headed Amazon (*Amazona oratrix*), found in several pre-Hispanic manuscripts.

A parrot-like bird that bears a strong resemblance to the drawn bird is the yellow-headed amazon (*Amazona oratrix*). This is a fairly large species from Central America and is now one of the endangered species (IUCN Red List). Striking are the red shoulder feathers and the green wings and tail feathers as also present in the drawings. Only when flying is the red top of the tail feathers visible. It is these characteristics that are also reflected in the drawn birds. It could therefore very well be the Yellow-headed Amazon in this case.



Figure 5.6 - Cacao tree leaves.

Also, when we look at the leaves of the cacao tree (figure 5.6), it seems that they match the drawn shape well. These elongated oval leaves grow at the ends of branches in a hand-shaped composition that has some resemblance to the drawn shape. But to be fair, this is by no means entirely certain as it could also be a stylized form of the flowers (figure 5.7) although they do grow on the trunk and larger branches.



A special feature of the cacao tree is that the white or pink star-shaped flowers grow on the trunk and larger branches. Less than ten percent of all flowers eventually become cacao fruits.



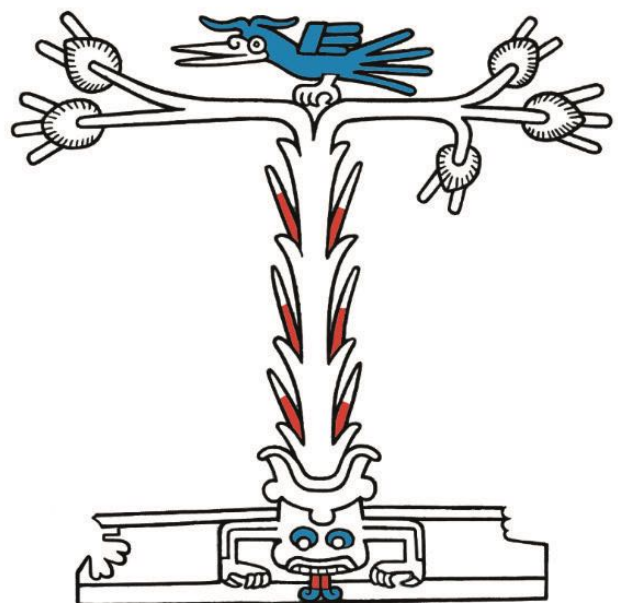
Figure 5.7 - Inflorescences of the cacao tree.

5.3 The white tree below

The slightly ovoid spheres at the ends of the branches of the white tree in the blue trapezium at the bottom resemble the tree as also occurs in the Codex Nuttall on the left on page 16. The long, sloping, spines on the trunk have a strong resemblance with that of the so-called 'Give-and-take Palm' (*Cryosophila stauracantha*).

This palm species can grow up to 10 meters in height and is native to southeastern Mexico, Belize and Guatemala and grows in warm, sheltered and humid areas. The trunk is covered with many long, protruding spines (images 5.8 and 5.10). The leaves of the palm are silvery white on the underside and were used for making brooms. This is still used in and around Belize.

A somewhat similar shape also appears on the left on page 5 of the Codex Vindobonensis (figure 5.11).



The white palm tree stands on a kind of platform and appears to emerge from the white, mythical creature below. According to Seler (1904: 7), this being is the hungry *tzitzitl*, a goddess of death, waiting for the sun to set to devour it. She has a split, red-blue curled tongue and a good row of teeth. The attitude and direction indicate that this creature is descending from a platform. The blue bird in the top of the tree is a kind of hummingbird, according to Eduard Seler. The only hummingbird that might be considered is the Mexican Violetear (*Colibri thalassinus*; figure 5.9) with its curious protruding blue feathers under the eyes that look somewhat like ears.



Figure 5.8 - Trunk of the palm with its many long protruding spines.



Figure 5.9 - Green ear hummingbird (*Colibri thalassinus*).



Figure 5.10 - Broken thorn palm trunk seen in a National Geographic (2019) documentary about archaeologist Edwin Roman-Ramirez's trek through the Guatemalan jungle near the ancient Maya city of El Zotz.

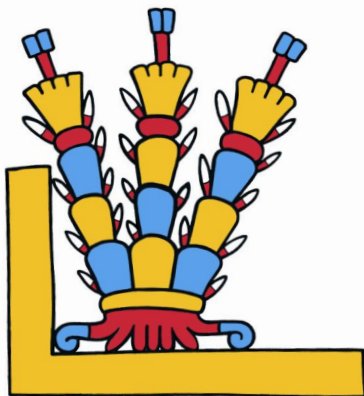


Figure 5.11 - Similar thorny tree or plant in the Codex Vindobonensis p. 5.

5.4 The blue tree on the left

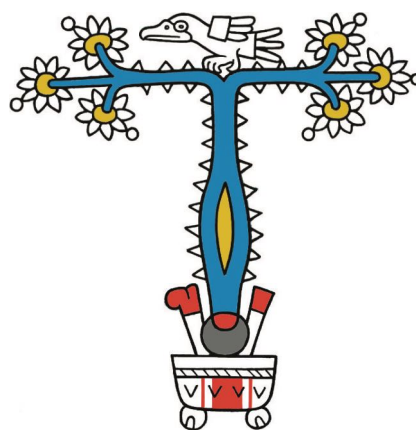
The fourth and last tree on the left in the yellow trapezium is very clearly the kapok tree (*Ceiba pentandra*). For the Maya this was the "first tree". For example, for the Mixtec, this was the "tree of origin," the "sacred tree of life," the place of birth" (figure 5.18) of deities and prominent noble families. It is therefore not surprising that this tree had great significance to the ancient Mexicans. This tree is therefore not missing in the other ancient manuscripts, as we will see later.



Figure 5.12 - Belly Ceiba trunk with notch.



Figure 5.13 - Stem with the many large spines and indentation.



The *Ceiba* or kapok tree is found in the tropical jungles of southern Mexico. The Maya considered this tree with its great height of more than 60 meters as the link between heaven, earth and underworld. The trunk of this sacred tree was also used for certain rituals during festivals.

The belly, often partially split, trunk is very characteristic (figure 5.12). This also applies to the numerous large spines on the trunk (figure 5.13). We see these two important characteristics in the above drawing of the blue tree.

When in bloom, the tree bears many small white flowers that open at night and attract numerous insects and bats (figure 5.14). The flowers remain open until the end of the morning and close against the rising heat of the sun. And only in the morning hours do thousands of bees and many small birds visit these flowers (Freidel 1993: 393-396).

The main bloom is from January to the 1st week of February. The tree bears fruit in the dry season around March 21, the spring equinox, just before the maize planting.

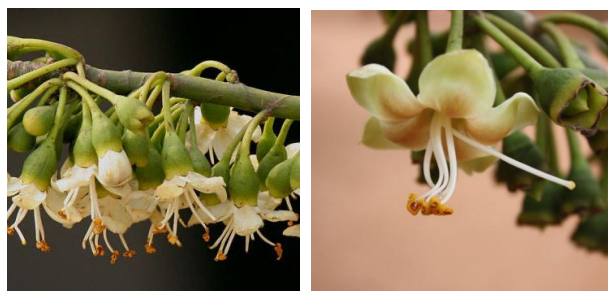


Figure 5.14 - Flowers of the *Ceiba*.

The flowers are inconspicuous, but the fruits are all the more so because they burst open after ripening and a large ball of white fruit fluff, the kapok, appears (figure 5.15). This kapok was used to make clothes and blankets. The kapok is better known to us as a filling for pillows.



Picture 5.15 - Legume of the Ceiba with fruit fluff (kapok).



Figure 5.16 - The palmate divided leaves are arranged in groups of 5 to 9.

The white bird in the top is an unknown species.

At the base of the tree is a sacrificial bowl with characteristic instruments used in the ritual of self-sacrifice. These consist of a rubber ball and an awl made of bone that was used to pierce ears, tongues, legs or penises to draw blood for sacrifice to the gods. The awl drawn here in the offering bowl appears to be broken. The blood was collected in the sacrificial bowl. The symbolism of such sacrificial bowls with offerings and instruments is, according to Seler, connected with the south.

The Ceiba is a frequent occurrence in ancient Mexican imagery as the first tree, the tree of life, which gave birth to various rulers and deities. A beautiful example of this tree of life is depicted on page 69 of the Codex Dresden (figure 5.17) where this belly, spiky, tree gives birth to Chac the rain god. The wide-open mouth of an earth crocodile at the bottom of the tree symbolically represents the earth from which this first tree of life emerged. This crocodile-like one is 'Itzam Cab Ain' which means "magical earth crocodile" (Edmonson 1986: line 1580) and was a symbol of fertility and abundance.

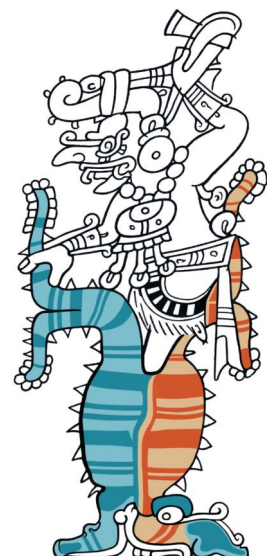


Figure 5.17 - The earth crocodile as Ceiba, the first tree of life to give birth to Chac, the rain god (page 69, Codex Dresden).

But one of the most evocative examples of the Ceiba that lives up to the name 'tree of life' is the beautifully drawn scene on page 37 of the Codex Vindobonensis Mexicanus I (or Codex Vienna; see figure 5.18) showing the birth of a divine couple with 51 descendants. The wide-open mouth of the earth crocodile has been replaced here by the head of a goddess, recognizable by the red tuft of hair on the forehead. The semicircular curls along the trunk and branches are again the iconographic symbol for the hard, rough bark of trees.

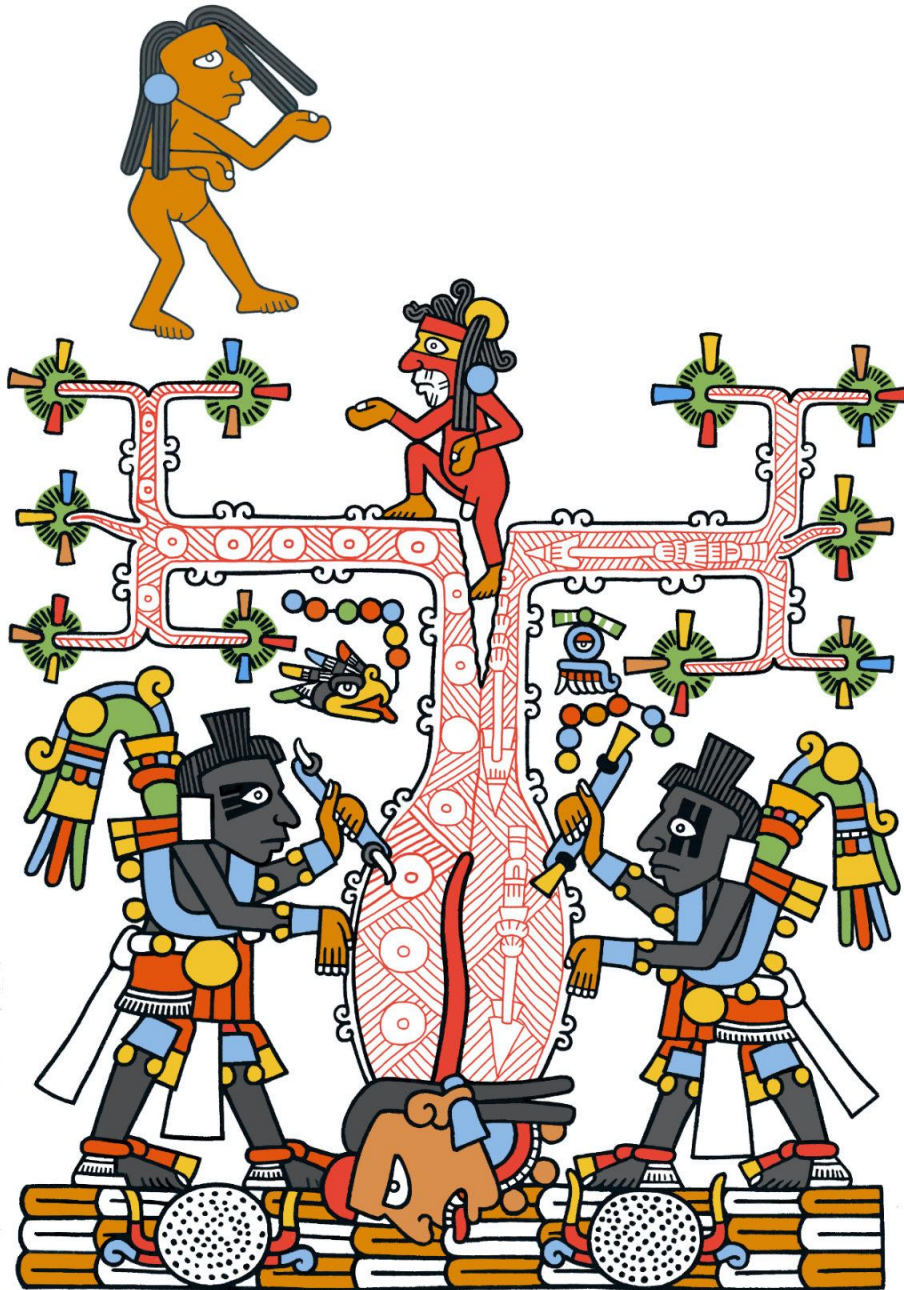
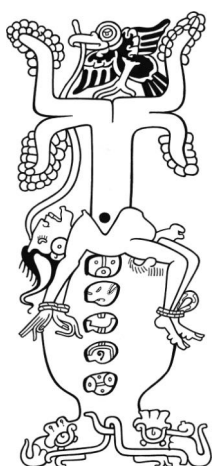
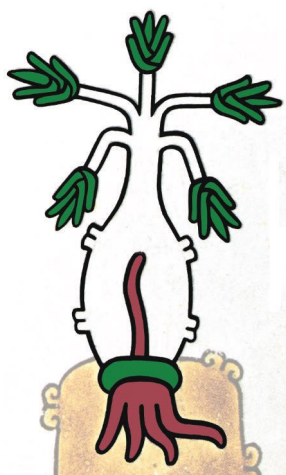


Figure 5.18 - The Ceiba as the 'tree of birth' giving birth to a divine couple (page 37, Codex Vindobonensis Mexicanus I) and 51 descendants .

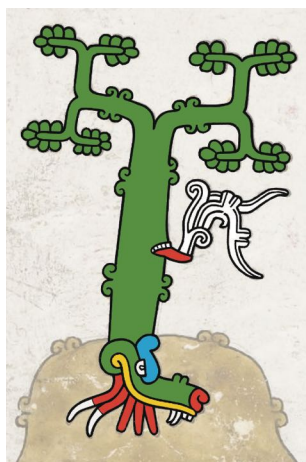
Figure 5.19 shows a number of other examples of the 'tree of life' as seen by the various creators of the manuscripts. In most cases it is clear that the Ceiba was considered the first 'tree of life' or 'tree of birth'.



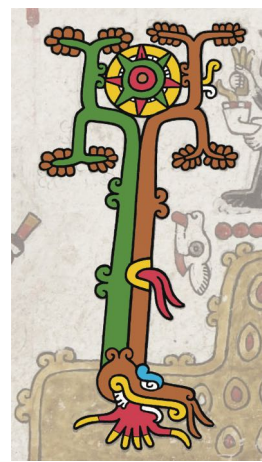
Codex Dresden
page 3



Codex Vindobonensis
page 50



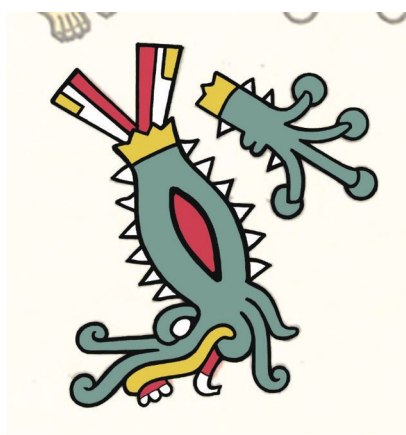
Codex Zouche-Nuttall
page 56



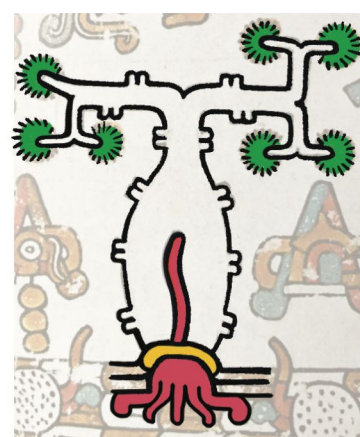
Codex Zouche-Nuttall
page 56



Codex Vaticanus B page 37



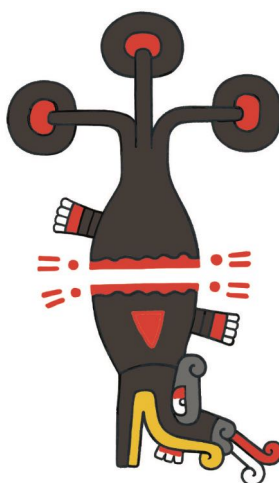
Codex Fejérváry-Mayer page 3



Codex Vindobonensis p. 50



Codex Selden page 2



Codex Laud page 38



Codex Borgia page 14

Figure 5.19 - Examples of the Ceiba as a 'tree of life' arising from the sacred earth crocodile, symbol of the fertile earth, as depicted in the various old Mexican pictures.

6 The directions

The depicted expressions of directions in pre-Hispanic Mexican manuscripts were long believed to be the same as our western horizon-facing compass directions north, east, south, and west. It was Cyrus Thomas (1882: 72, 73) who literally adopted this assumption based on 16th and 17th century texts by Diego de Landa (in Gates 2012) and Juan Pío Pérez (in Stephens 1848) and into the Western scientific world introduced. Subsequently, Eduard Seler also adopted this assumption in his discussion of the directions on page 1 of the *Codex Fejérváry-Mayer*. Unfortunately giving the impression that the Mexicans before the invasion of the Spaniards would have knowledge of these 4 western compass directions, which was definitely not the case.

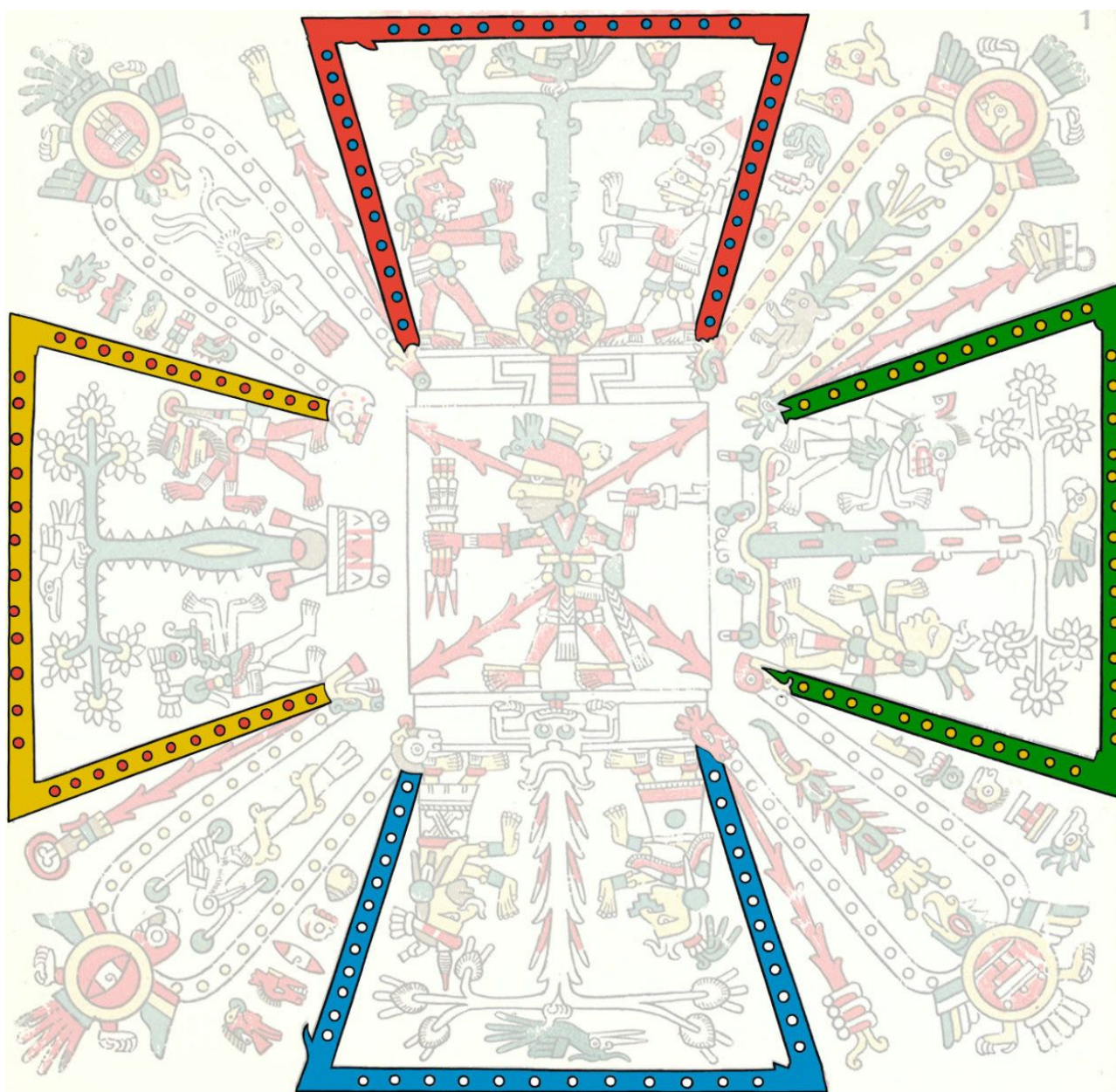


Figure 6.0 - The 4 quarters in the scene on page 1 of the *Codex Fejérváry-Mayer*.

The directions for the ancient Mexicans were spatially broad areas such as sunrise and sunset that, then and now, cover a wide area every year. And in fact that is still the case for us modern humans. Because we mean a wide eastern area that the sun moves past on rising but say east, unconsciously referring to a fixed point on the magnetic compass.

Figure 6.1 illustrates the spatial difference between the east and west compass points and the wider Mexican sunrise and sunset spatial indications. It is clear that these two are not necessarily the same. For example, compass point west is always exactly 270° from the compass, but sunset in the west takes place in an area covering 48° of the horizon. The same goes for the east. So they are comparable to a certain extent, but by no means the same, as is sometimes suggested.

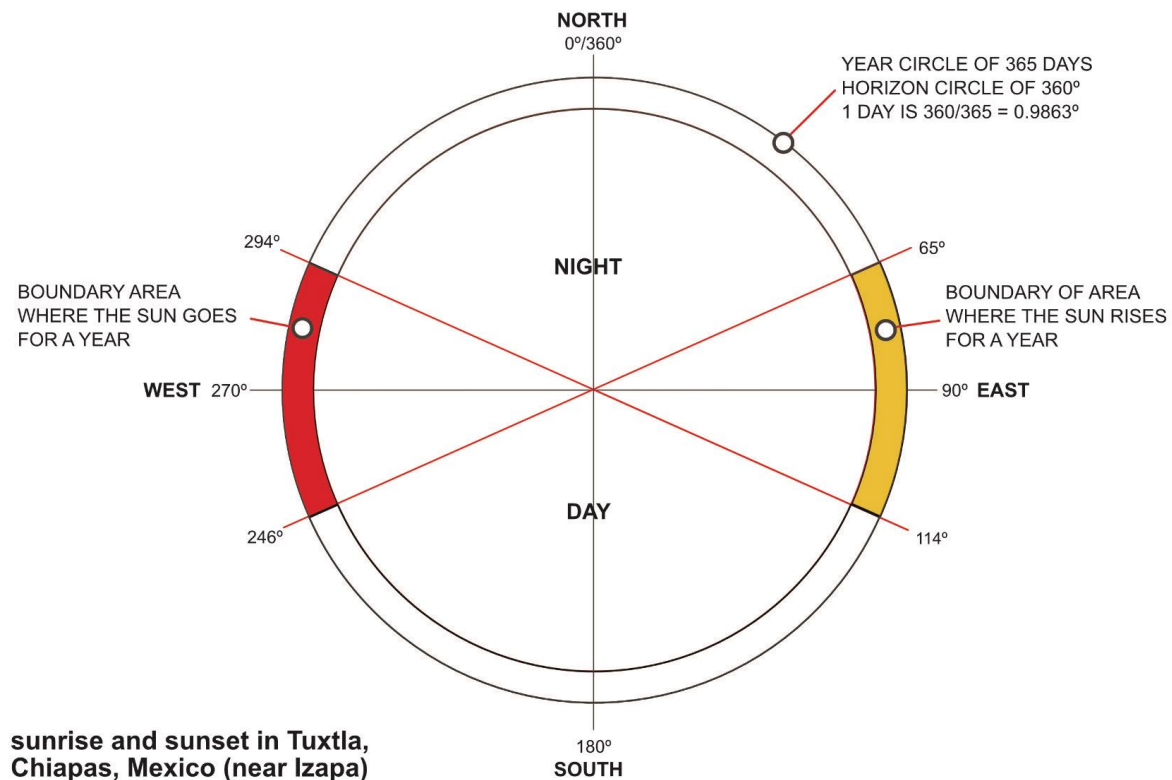


Figure 6.1 - Western compass directions north, east, south and west in relation to sunrise and sunset in Tuxtla, Chiapas, Mexico.

With a magnetic compass, the wind rose is always the same, so north up, east right, south down and west left. But in the field without a compass, this is not the case. There it depends entirely on the direction in which you walk or look. When looking at a scene in one of the old Mexican manuscripts in which spatial indications occur, it is not at all clear that these are the same as our modern Western compass rose. Sunrise or east does not have to be to the right of the observer because it may as well be to the left. However, we Westerners have now become so indoctrinated that we blindly assume that east must be to the right of north. But this of course depends entirely on which direction is being looked at. Looking to the south, the east is to the left of the observer and not to the right.

The more you immerse yourself in these spatial designations, the more you realize that there is certainly no unambiguity in the way in which these spatial designations are applied in pre-Hispanic Mexican manuscripts. In the Mayan era manuscripts in particular, there is a wide range of applications in all kinds of reading directions and sequences in which no unambiguous application can be established as I will demonstrate below.

The invention of the magnetic compass and the accompanying compass directions north, east, south and west dates back to the 12th century CE (China). This was completely unknown in ancient Mexico until 1519 CE. These directions were not introduced until the 16th century CE by the Spanish who invaded ancient Mexico and subdued the population.

Remarkably, no one apparently realized that our western compass directions are based on four invisible points on the horizon that are exactly 90° apart. These four points, east, north, west and south, are determined by the Earth's magnetism and a 360° division of the horizon (figure 6.2). However, the 360° division of the horizon has no relationship whatsoever with any form of measuring time such as clocks or calendars.

It is indisputable that the ancient Mexican peoples had no knowledge of geomagnetism and much less of a 360° division of the horizon. That is why they could not know anything about these fixed points and certainly not about their Western names. It is therefore incomprehensible and also very confusing that the Western naming of these four compass directions is still adhered to instead of applying the native meanings and names.

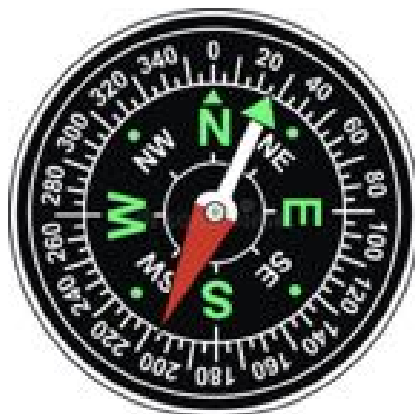


Figure 6.2 - The 360° distribution of the four cardinal directions on a magnetic compass.

It is only in the last 45 years (Brotherston 1976; Coggins 1980; Bricker 1983; Hammond 1987; Stross 1991; Tedlock in Aveni 1992: 18-42) that it has been recognized that the angles or directions of the ancient Mexicans are not our western compass directions. They are based on natural phenomena from the perception of the then indigenous inhabitants and have only limited resemblance to our compass directions.

The origins of these directions can be traced back to one of the creation stories of the ancient indigenous Mexicans which mentions that after creation trees grew on the 4 corners of the world. These trees had to hold up the sky and were therefore called heaven trees. There is also a fifth tree mentioned in the center, the center or navel, of the world. This was the Ceiba or kapok tree that reached into heaven and formed the link between the gods in heaven, the people in the upper world and the dead in the underworld. In the surviving creation story, each of the 4 trees in the corners is also assigned a color that was by no means the same everywhere. Incidentally, the creation story clearly speaks about the 4 corners or sides of the world and not about the 4 quarters of the world as interpreted by Western science. Furthermore, it can be deduced from the mention of the 4 corners or sides that the ancient indigenous Mexicans saw the world as a rectangle, because a circle simply has no sides and corners.

Nor is there any logic to be discovered in applying the 4 directions in the same way in both a 260-day count and the year bearer cycle of 52 years. At first sight there is no direct connection between a direction such as a spatial indication and a counting of time. For example, what is the relationship between the area of the sunrise and a division of 65 days? And why is this same area of the sunrise then reapplied a few pages away in a year of the year bearer cycle? Units that do not appear to be mutually related, but whose existence seems to be taken for granted in the literature. This is discussed further under 6.3.

When it is also taken into account that it is probably not even about the directions known to us, but about the 4 most important moments of the daily path of the sun, the supposed relationship with quarters of a day count becomes even more unlikely. The daily cycle of the sun makes much more sense in relation to time. And yes, the sun's daily and annual cycle is also 360°. So both can be easily divided into 4 quarters in time and space.

After the creation of the land, the heavens had to be held up on the four corners of the world by four divine bearers of heavens and the trees and colors belonging to them. These four gods were known by the names of *pauhtuns*, *bacabs*, *mams*, or *chacs*.

These four divine bearers of the heavens are sometimes beautifully portrayed in various manuscripts. One of the finest examples in which the above-mentioned combination of divine bearers of the heavens, tree, color and direction is beautifully designed is the scene on pages 30 and 31 of the Codex Dresden. This is the ancient Mayan rain god Chac who is depicted in four different guises on four different trees. In the hieroglyphs shown above the Chacs, the name of this deity (Chac), the color and the spatial direction, or moment of the day, are indicated (figure 6.3). I would point out again that our compass directions are mentioned here for the sake of convenience, but that they were actually larger areas of space or the diurnal cycle of the sun.

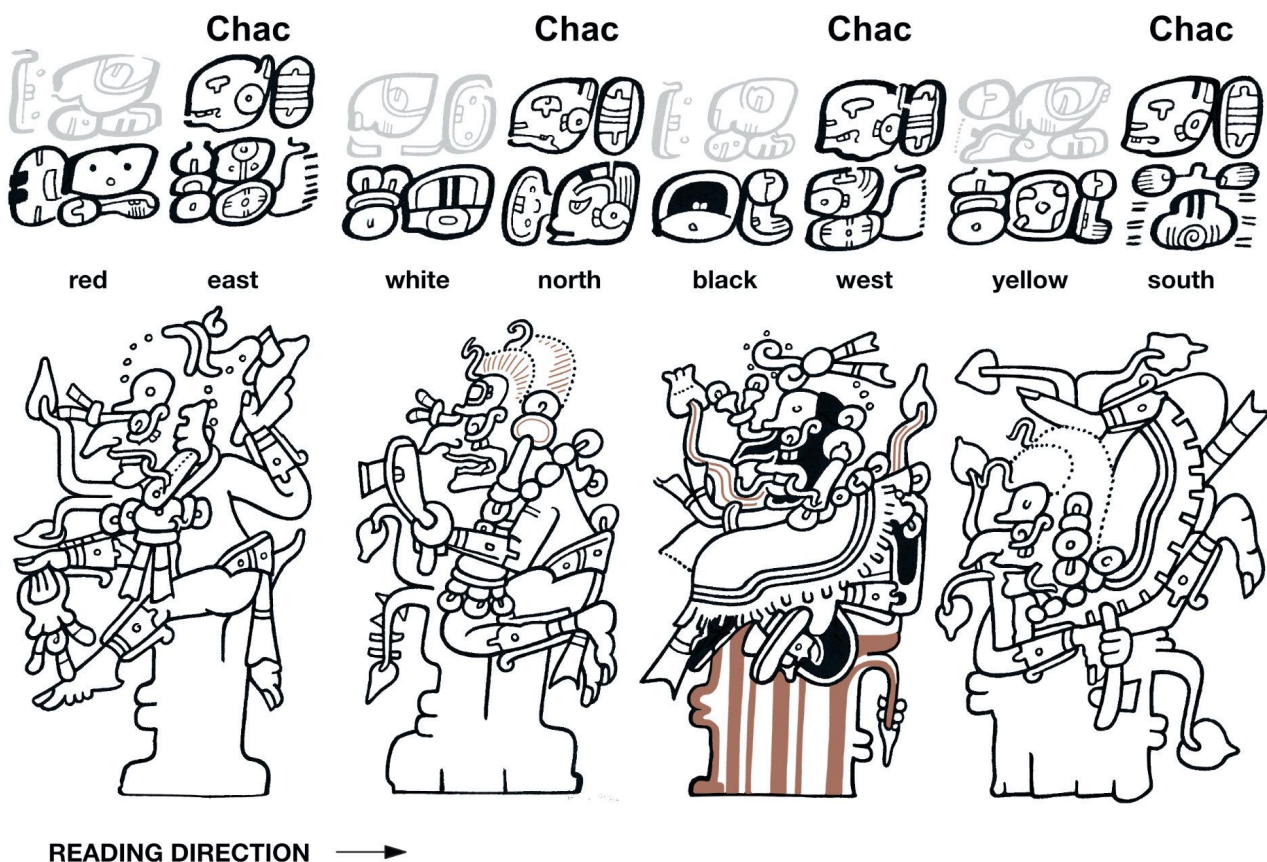


Figure 6.3 - Codex Dresden pages 30-31 with 4 divine bearers of the heavens (*Chacs*) sitting in the top of four different trees and the associated symbolism of directions and colors.

However, the directions are not always depicted in the same way in the pre-Hispanic Mexican manuscripts preserved. Although the underlying philosophy of the directions has remained the same over the centuries, in the manuscripts there are two clearly distinguishable methodologies in the way in which these directions are depicted. For convenience, these methods will be referred to as those of the Mayan era and those of the Aztec era. And although the Codex Fejérváry-Mayer is counted to the Aztec era, to answer the question of whether there was a fixed system for the composition, order and reading direction of the directions, both methods will be discussed.

Intermezzo

The image of the world as told in the Mexican creation story has a remarkable parallel with one of the creation stories from ancient Egypt. This concerns the sky goddess Nut (Noet) who bends on all fours over the rectangular box-shaped earth, her naked body forming the sky that is held up during the day by her limbs as the four pillars that support the sky and form the unchanging cardinal directions. The long sides of the rectangular earth between feet and fingers represent north and south, the two short sides east and west. The line between her feet is the sunrise (east) and the line between her hands is the sunset (west). In the morning, Nut in the East gives birth to the sun that travels across the underside of her body, after which the sun enters Nut's mouth and is swallowed by her. Then the sun traveled in her body through the dark Dutat (Doeat), the underworld, after which Nut brought the sun back into the world the next morning. This vision of part of creation is beautifully portrayed in one of the oldest pyramid texts (see figure 6.4).

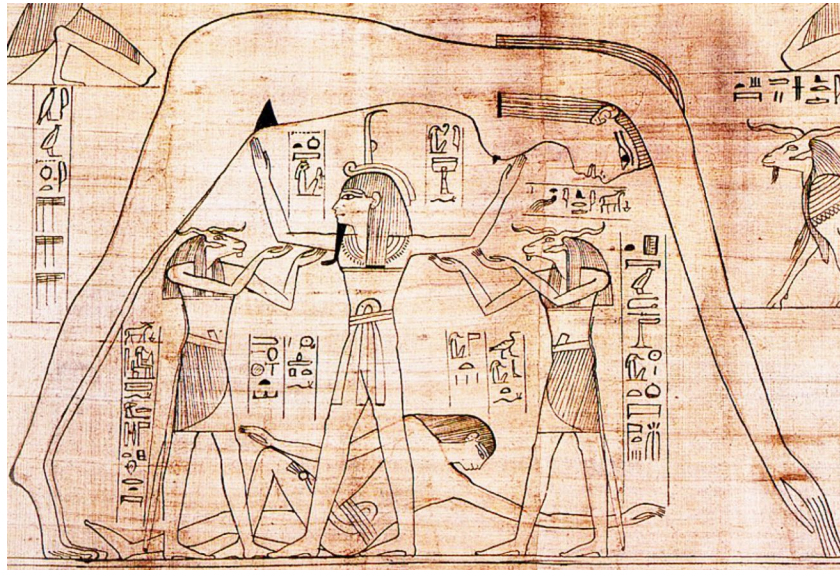


Figure 6.4 - Drawing from Egyptian creation myth (Greenfield Papyrus, c. 950 BCE) showing the sky goddess Nut holding up the sky during the day, her limbs representing the four pillars of the directions (photo Public Domain, Wikimedia Commons).

6.1 Directions Maya era

In the Maya era, from which the codices Dresden, Madrid, Paris and Grolier date, the 4 directions in the manuscripts are indicated in an easily recognizable way by unique composite characters that I will refer to as directional signs. Contrary to what is often stated in the literature, these direction signs represent spatial patterns and broad areas that correspond to our western compass directions only to a limited extent. In figure 6.5 these directional signs are shown with their more logical meanings (see Stross 1991: 102-110).

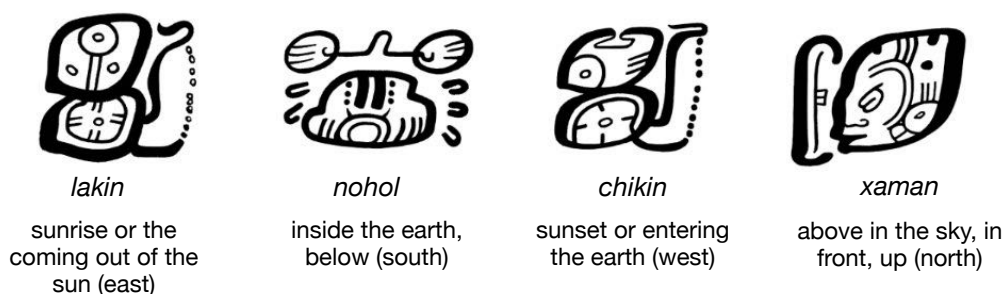


Figure 6.5 - The four unique, composite, Maya directional signs for the corners or sides of the world as used in the Maya manuscripts.

The only visually demonstrable relationship that we see in the old Mexican manuscripts, which is also partly supported by colonial sources, is that between the 4 corners or sides of the world, the 4 heaven trees that hold up the sky at these 4 corners, the 4 deities known as the bearers of the heavens and the 4 year bearers. It is this combination that is almost literally visualized in several ancient Mexican manuscripts and is also present on page 1 of the Codex Fejérváry-Mayer.

In addition to the directional sign, a sign for a color is sometimes also drawn that is connected to the directional sign (figure 6.6). But there is no fixed pattern for these colors because there are different color patterns. For example, on page 1 of the Codex Fejérváry-Mayer, this color pattern is red, green, blue, yellow.

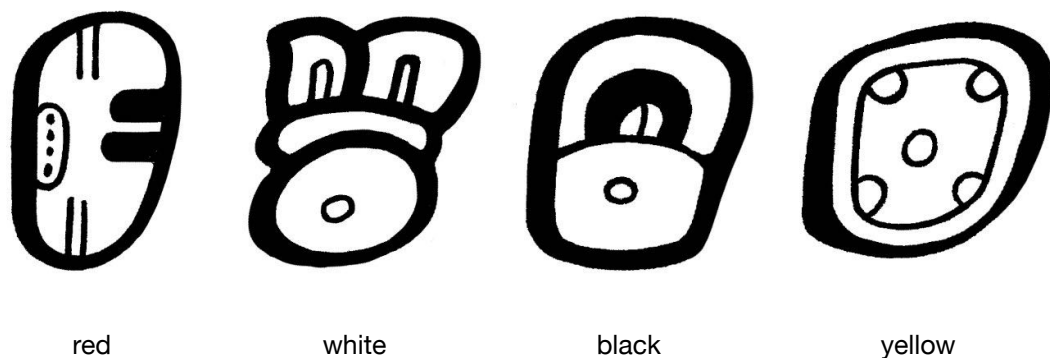


Figure 6.6 - Common Maya signs for the colors red, white, black and yellow.

In order to assess whether in the Maya manuscripts a fixed pattern is used for the order, reading direction and application of the 4 angles or directions, I have investigated all occurring direction signs in the codices Dresden and Madrid. For the analysis itself I assumed only complete strings of 4 directional signs.

In the Codex Dresden I have distinguished 81 almanacs (following the methodology of Thompson 1972) of which 21 almanacs contain 1 or more directional signs. The most common order of the directions here is also sunrise (east), up or daylight (north), sunset (west), down, under or night (south).

In the Codex Madrid, 248 almanacs can be distinguished (following the method of Vail 2004), of which 42 almanacs with 1 or more directional signs. The most common order is sunrise (east), up or daylight (north), sunset (west), down, under or night (south). But also the order up or daylight (north), sunset (west), down, under or night (south), sunrise (east) and the order sunset (west), down, under or night (south), sunrise (east), up or daylight (north) occurs regularly.

In the Maya codices Dresden and Madrid, 3 reading patterns in the use of the series of 4 directional signs can be distinguished in outline. The majority (group A) have the usual rectilinear horizontal pattern of 4 consecutive direction signs, but with different starting points and in different orders (figure 6.7).

GROUP A



Reading direction from left to right:
Dresden 22b, 29b-31b, 30c-31c,
31b-34b;
Madrid 10c, 20d-21d, 25d, 38a-
39a, 43b, 43c, 61a, 63a, 88c, 93c,
100d



Reading direction from left to right:
Dresden 42c-45c



Reading direction from left to right:
Dresden 29c-30c, 46-50;
Madrid 43a



Reading direction from left to right:
Dresden 25-28,



Reading direction from left to right:
Madrid 34-37, 89d



Reading direction from left to right:
Madrid 42c, 46-50

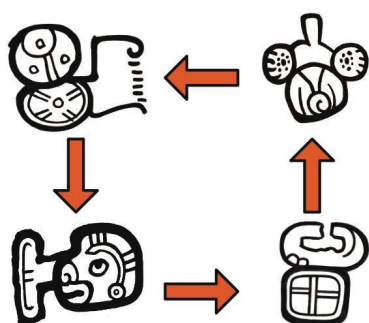


Reading direction from left to right:
Madrid 78

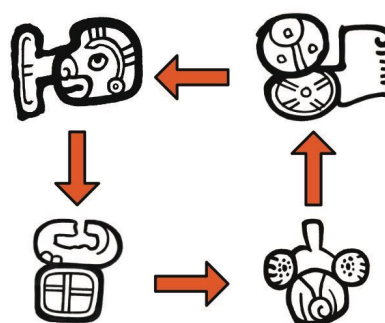
Figure 6.7 - Group A: Horizontal, contiguous strings of 4 directional signs in the codices Dresden and Madrid.

In addition, there is a second group (B), which only occurs in the Codex Madrid, with a reading pattern in the form of a rectangle with again different starting points and a varying order (figure 6.8).

GROUP B



Reading direction in rectangle
counterclockwise: Madrid 6b,
50a, 50b, 51a, 51b, 75-76, 95b



Reading direction in rectangle
counterclockwise: Madrid 4b,
51c

Figure 6.8 - Group B: strings of 4 directional signs with a rectangle reading pattern that are only found in the Codex Madrid.

As a third group (C), a reading pattern in an X-shape only occurs in the Codex Madrid, again with varying starting points and in different orders (figure 6.9).

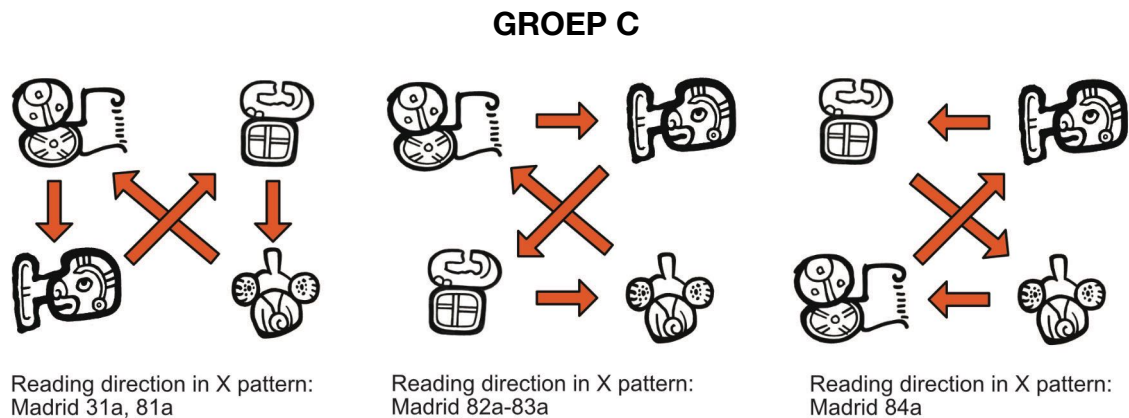


Figure 6.9 - Group C: strings of 4 directional characters with a special X-shaped reading pattern that only occur in the Codex Madrid.

However, the number of complete strings of 4 directional signs in the Codex Dresden is limited. They occur in different applications with 10x on pages 46-50 (Venus tables, 2x on each page but with two different starting points). One half has the usual order of sunrise (east), up or daylight (north), sunset (west), down or night (south), while the other half has the order up or daylight (north), sunset (west), down, under or night (south), sunrise (east) (see figure 6.7).

The directional signs in the Codex Madrid also appear in different types of applications. Most of this is present in the 4 x 65-day counts. In addition, they appear in the counts of 1 x 260 days, 5 x 52 days, 10 x 26 days, and 1 x 52 years. As shown in group A (figure 6.7; horizontal strings of 4 directional signs), the strings of 4 mostly begin with sunrise (eastward direction). Furthermore, it is clear that the starting points of the strings of 4 directional signs are very variable.

Conclusions

Two conclusions can be drawn from the previous analysis of the Maya codices:

1. The corners or directions indicated in the codices by the series of 4 directional signs are not based on the western compass but on the apparent diurnal path of the sun.
2. The sequence of 4 directional signs in the codices Dresden and Madrid have no fixed reading pattern, starting point or sequence.

6.2 Directions Aztec era

Unlike the Maya, the Aztec and their contemporaries did not have specific directional signs for the 4 corners or sides of the world. Instead, like the Maya, they used the previously discussed 4 groups of 5 day signs from the long 5 x 52 day count (see 3.6.2.1) in combination with a number of deities and sometimes also with heaven trees and year bearers. This method has been applied in the codices Borgia (49-53), Vaticanus B (17-18), Fejérváry-Mayer (1, 33-34), Cospi (12-13) and Laud (39a-42a), all of which belong to the so-called Borgia group.

An artistically very beautiful, but complex, example can be found in the Codex Borgia. Herein is shown on pages 49-53 (figure 6.8) the structure on which the 4 directions, indicated by the well-known four groups of 5 day signs (5 x 52 days), the 4 cosmic trees, the 4 deities and the 12 days (red dots) that lie between each of the 20 day signs, are applied as a harmonious whole.

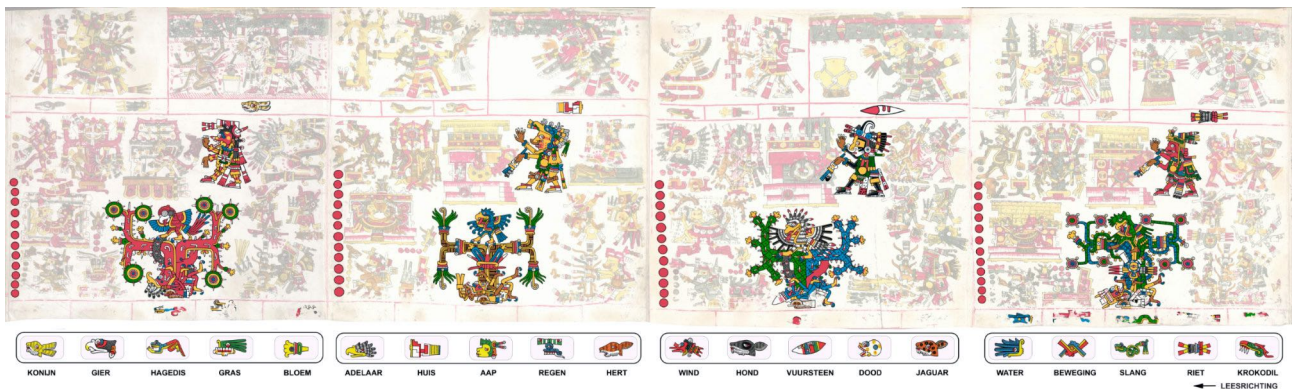


Figure 6.8 - The long 5 x 52 day count (4 quarters) in connection with the 4 year bearers, 4 deities, 4 trees and 4 directions on pages 49-52 of the Codex Borgia. Reading direction from right to left.

The four fixed groups of 5 day signs are both vertically in columns (Cospi 12-13, Laud 39-42) and horizontally (Borgia 49-53, Vaticanus B 17-18 and 24-27, Fejérváry-Mayer 13-14) in series of 5 used. They are easily identified in the various ancient Mexican manuscripts (figures 6.8-6.14). They are the same 4 groups of 5 day signs as those of the long 5 x 52 day count, although they could also serve as a 4 x 260 day count (see 3.6.2.1) where each deity could represent a cycle of 260 days.

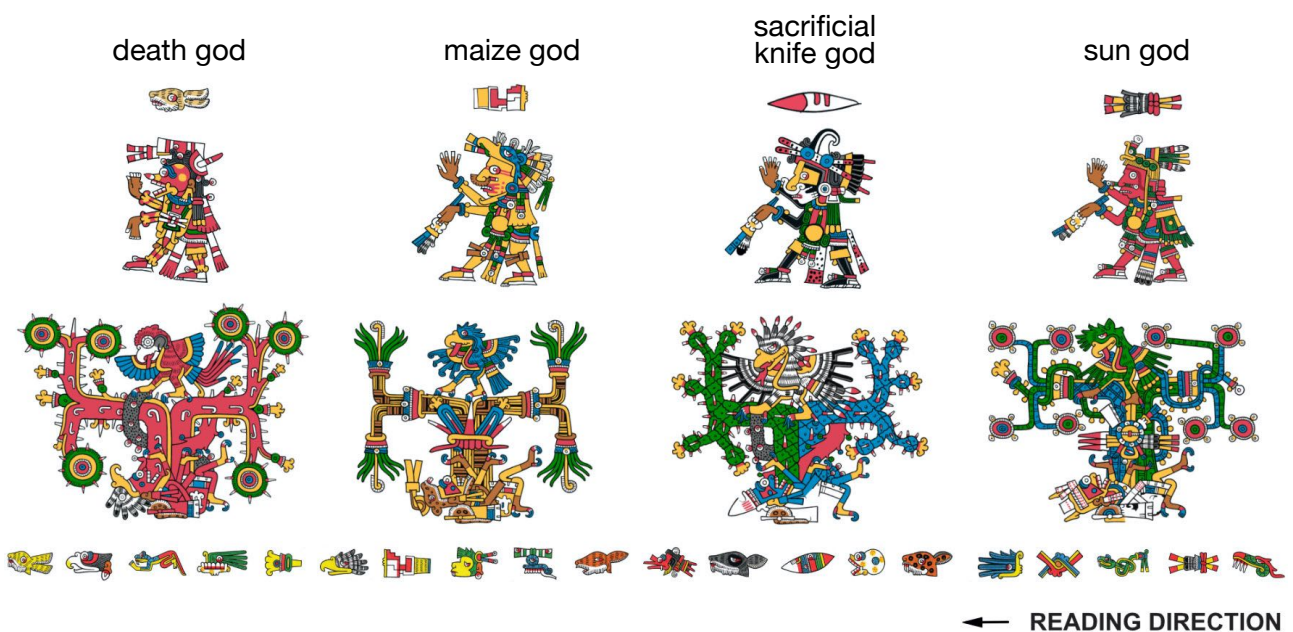


Figure 6.9 - Enlarged and compressed view of the year bearers, deities, cosmic trees, birds and horizontally day signs from pages 49-52 of the Codex Borgia. Reading direction from right to left.

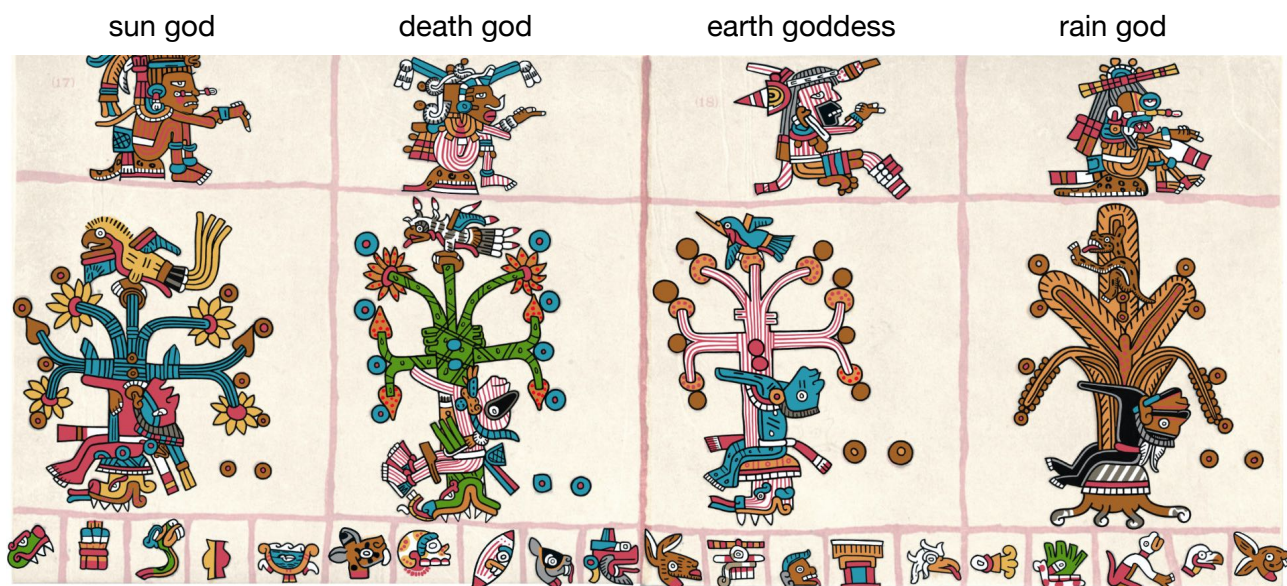


Figure 6.10 - Codex Vaticanus B 17-18 with the 4 groups of 5 day signs horizontally. Reading direction from left to right.

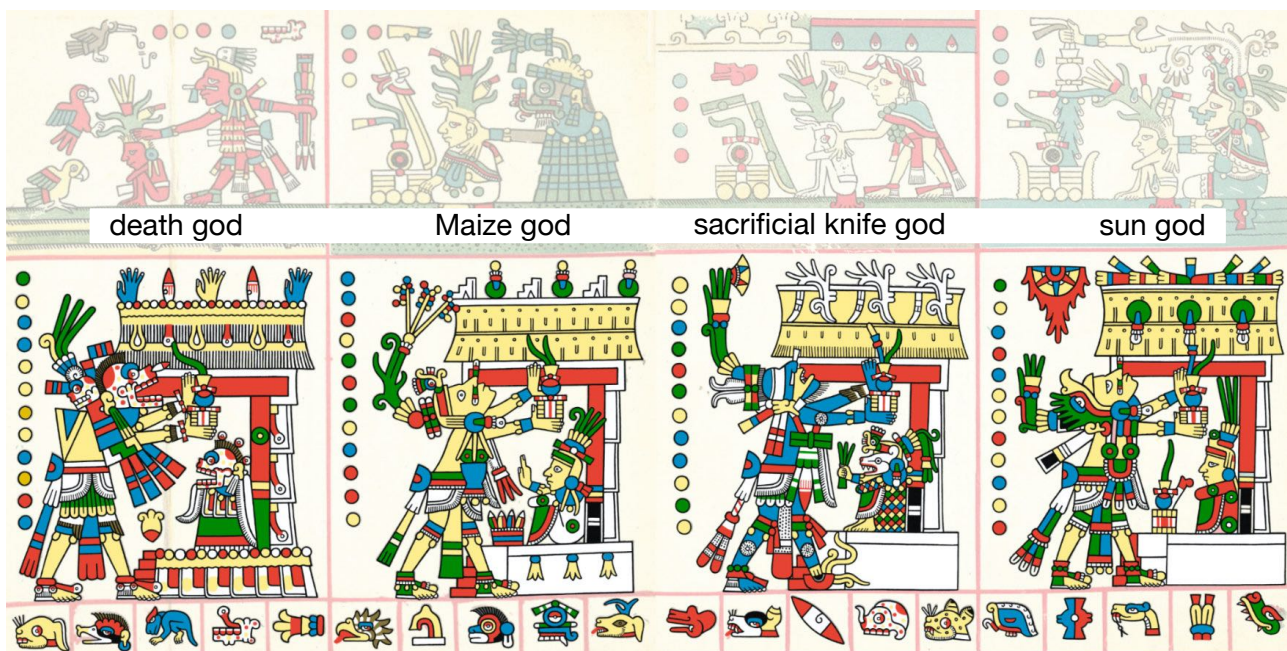


Figure 6.11 - Codex Fejérváry-Mayer 33-34 with the 4 groups of 5 day signs horizontally. Reading direction from right to left.



Figure 6.12 - Codex Vaticanus B 24-27 with the 4 groups of 5 day signs horizontally and a reading direction from left to right.

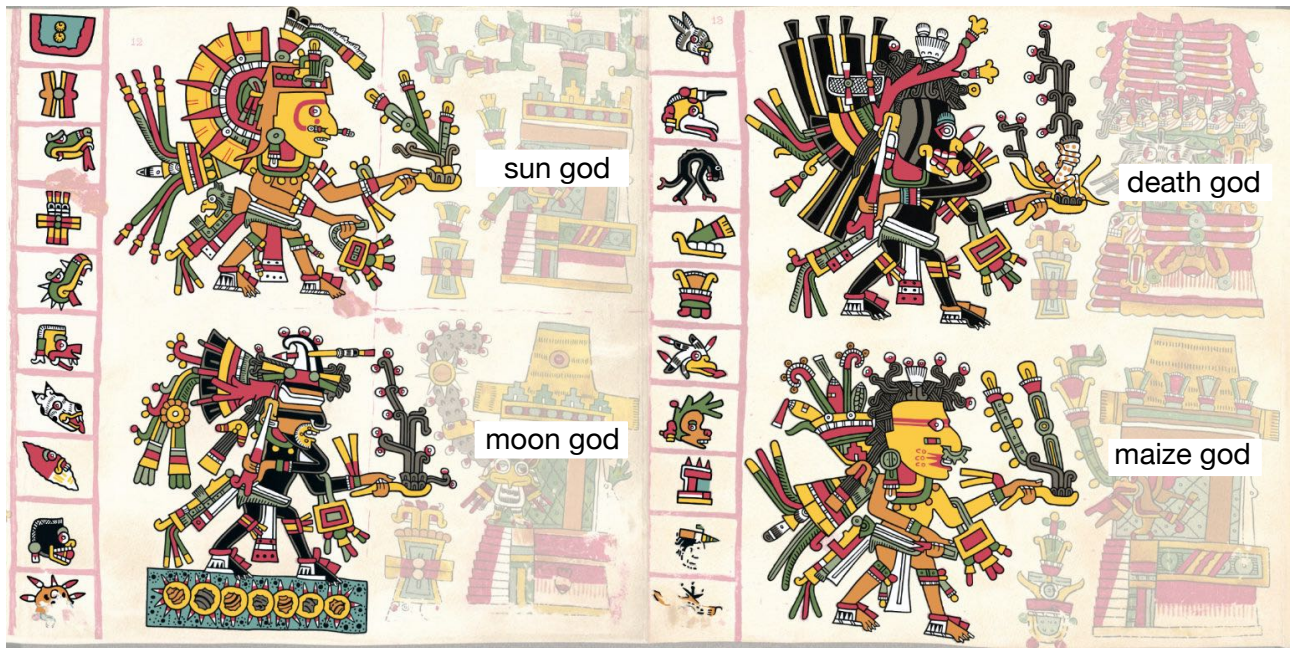


Figure 6.13 - Codex Cospi 12-13 with the 4 groups of 5 day signs vertically. The reading direction of the 4 groups is from bottom to top in a pattern of top left, bottom left, bottom right and top right.

four forms of the goddess of filth

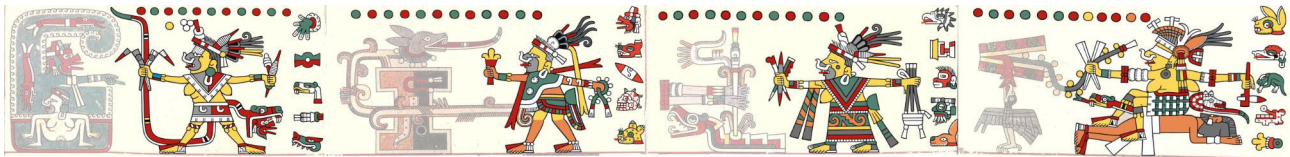


Figure 6.14 - Codex Laud 39a-42a showing the 4 groups of 5 day signs as the long 5 x 52 day count placed vertically in columns next to the 4 forms of the Aztec goddess of filth. The reading order of each column is from bottom to top and the order of the columns is from left to right.

In the examples of the Aztec era manuscripts the fixed sequence of 20 day signs is always present, divided into 4 groups of 5 day signs (the 4 corners or sides of the world, or quarters, see also figures 6.15 and 6.16). These 4 groups can occur both horizontally and vertically and in different reading directions. The sequence of these 4 groups of 5 day signs is the same as that of the long 5 x 52 day count (figures 6.8-6.14, 6.16; see also 3.6.2.1). Each of the 4 groups of day signs is accompanied by a major deity who is said to be associated with a particular corner or side of the world, also called a quarter or direction.

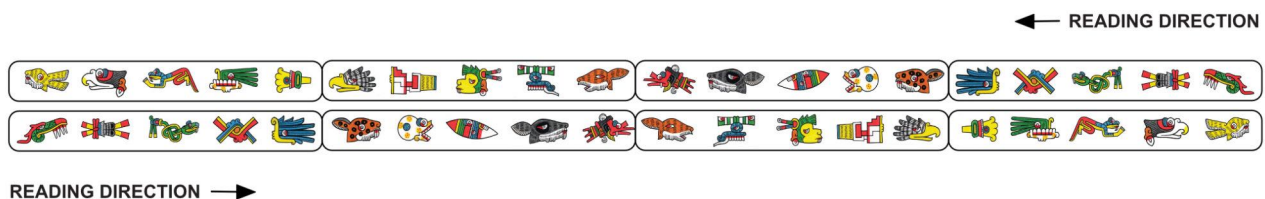


Figure 6.15 - 20 day signs in a horizontally displayed long 5 x 52 day count, divided into 4 groups of 5 day signs and reading from right to left (top; codices Borgia 49-52 and Fejérváry-Mayer 33-34) or left to right (bottom; Codex Vaticanus B 17-18 and 24-27).

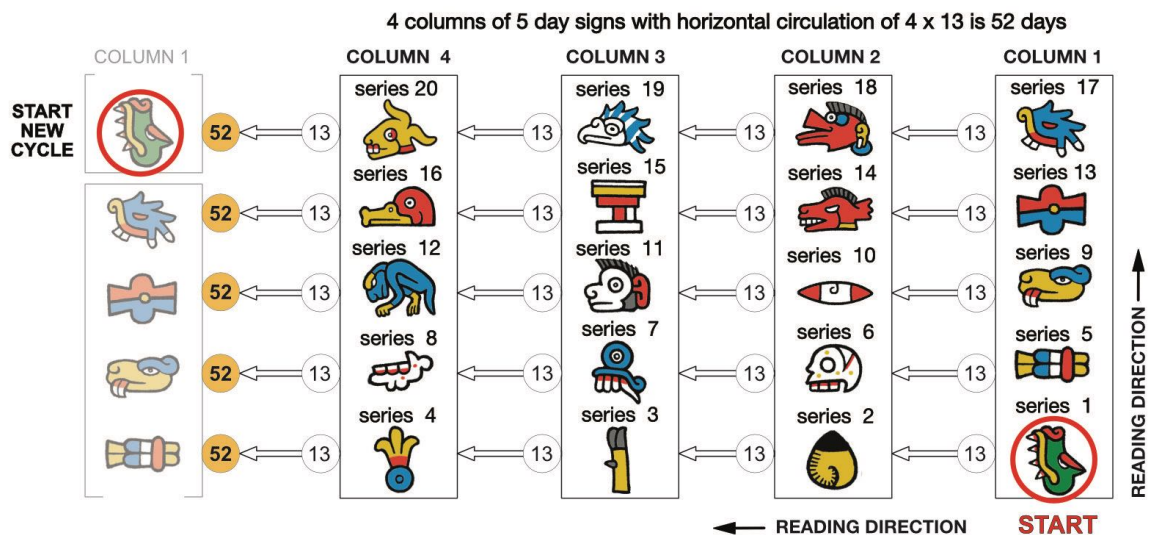


Figure 6.16 - 20 day signs of the long 5 x 52 day count in 4 groups of 5 day signs vertically grouped into 4 columns of 5 with reading direction from bottom to top and right to left. This structure is present in the codices Fejérváry-Mayer (1), Cospi (12-13) and Laud (39a-42a).

Of the above 6 examples, the sun god is associated in 4 cases with the first group of 5 day signs that starts with the day sign crocodile. This concerns the codices Borgia 49-53, Vaticanus B 17-18, Fejérváry-Mayer 33-34 and Cospi 12-13. In 3 out of 4 cases, the sun god is accompanied by a highly regarded bird species: the quetzal. It is clear that in these cases the sun god is always at the beginning of the long 5 x 52-day count and, moreover, is the ruling deity of the 1st quarter where the sun rises every day.

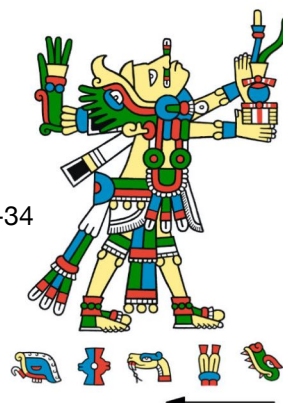
Borgia 49-53



Vaticanus B 17-18



Fejérváry-Mayer 33-34



Cospi 12-13



Figure 6.17 - The 4 examples where the sun god is at the beginning of the long 5 x 52 day count starting with the day sign crocodile.

In the fourth and last group of 5 day signs, which starts with the day sign flower, 3 of the 6 examples show the death god (figure 6.18). This concerns codices Borgia 49-53, Fejérváry-Mayer 33-34 and Cospi 12-13. In these cases, the death god is always at the end of the long 5 x 52 day count. It is remarkable that the deities ruling over the four quarters also belong to the 9 deities of the night, but are in a different order and reading direction for the 4 directions.

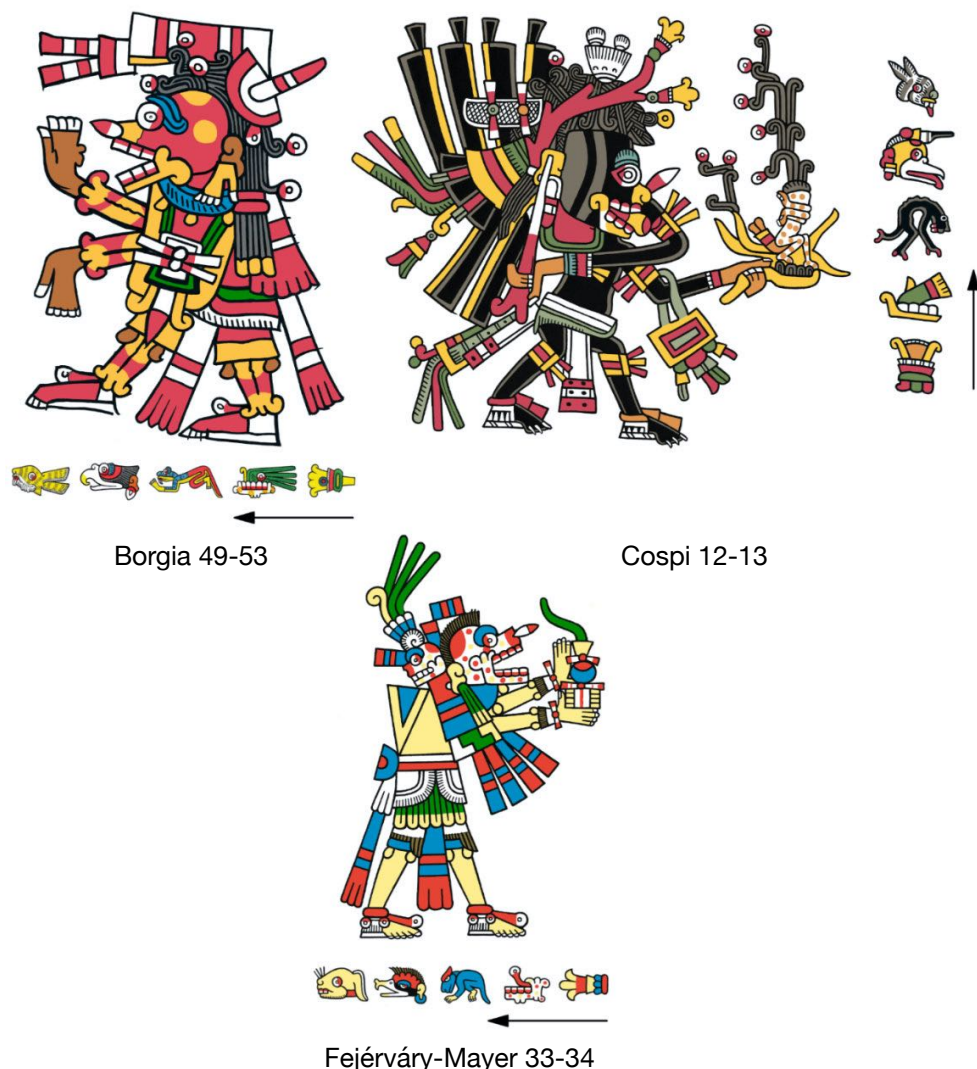


Figure 6.18 - The three examples where the death god is shown as the fourth and last deity in the fourth quarter with the last group of 5 day signs starting with the day sign flower.

It can be concluded that in the examples shown, the structure and underlying philosophy are always recognizable, but often with a different interpretation. The basis of this structure is the quadruple in the form of the 4 corners or sides of the world with 4 bearers of the heavens or deities and 4 groups of 5 day signs. In 4 of the 6 cases, 12 colored dots are also present, which together with the starting day sign (day number 1) represent the 13-day period. These are also called the distance numbers. However, the interpretation of the 4 scenes with the names of the deities, the trees, the birds and the sacrifices differs per manuscript and was most likely determined by the religious views of the community to which the creator of a manuscript belonged.

Only the sun god and the death god have a certain degree of unambiguity in appearance in combination with a fixed group of 5 day signs which in turn are connected to the 4 corners or sides of the old Mexican world. It is clear that the 2 deities between the sun god and the death god in the different manuscripts can be different.

In the examples mentioned, no fixed relationship can be discovered between deities and trees. Nor can a relationship be established between the types of trees and the four corners or sides of the world, which are now called the directions.

When the above findings are compared with page 1 of the Codex Fejérváry-Mayer, we see that here, too, the 4 directions begin with the sun god with the quetzal as companion and end with the death god. The well-known natural cycle of life and death. The cycle of the 4 directions on page 1 of the Codex Fejérváry-Mayer begins in the red trapezium with the sun god, where life begins in the simple line of thought of the ancient Mexicans and ends in the green trapezium with the death god (figure 6.19).

We have already seen that the 4 vertical groups of 5 day signs have a counterclockwise reading direction (colored arrows in figure 6.19). The first vertical group of 5 day signs belonging to the sun god is therefore to the left where the first quarter ends. The second group of 5 vertical day signs is at the bottom left where the second quarter ends. Both the sun god and the death god are depicted as ruling deities of the quarters on the left side of their quarters. Following the logic of the clearly present structure, it is obvious that in the second and third quarters, too, the ruling deities of the quarters are to the left of the trapezium. If the reading direction of both day signs and year bearers is followed, then it is again the law of logic that the reading direction of these 4 deities ruling over the directions is also counterclockwise (figure 6.19).

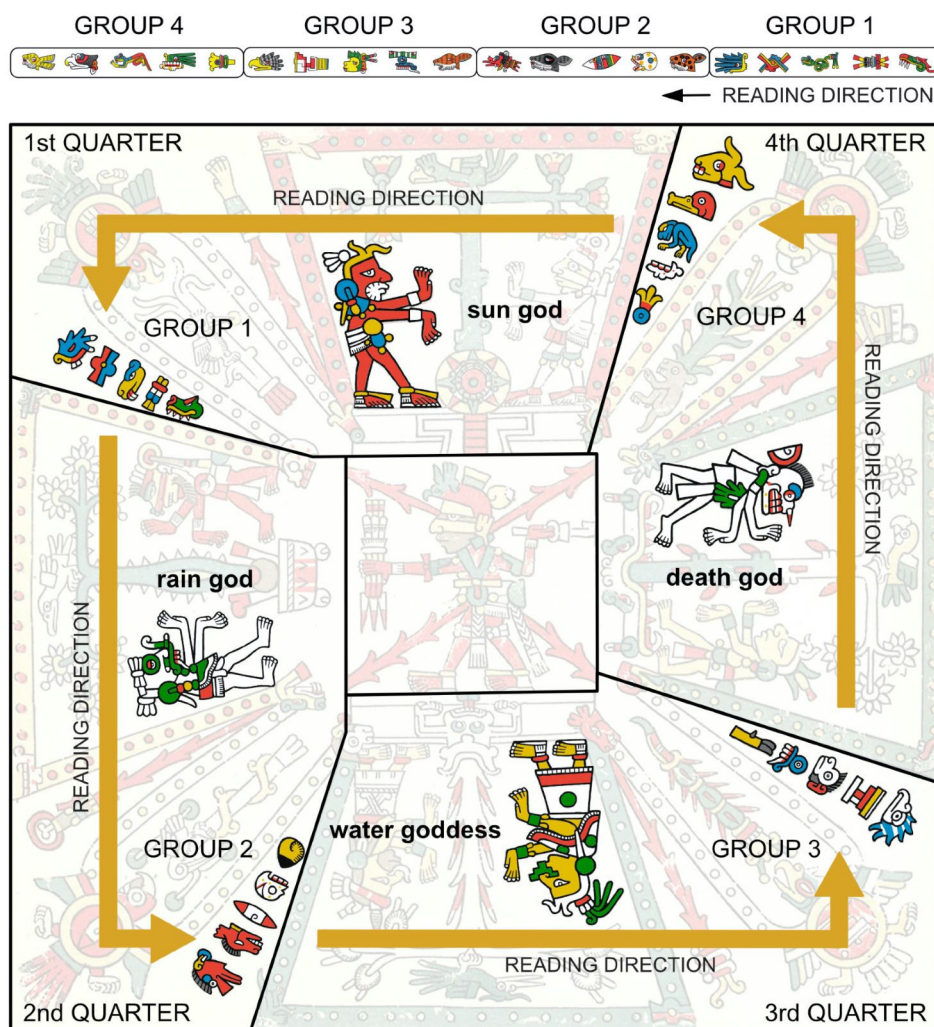


Figure 6.19 - Reading direction of the long 5 x 52-day count in the form of 4 fixed groups of 5 day signs in relation to the 4 quarters and the ruling deities that are always on the left side of the trapezium.

Although several of the discussed directions in the Western interpretation are directly related to the Western directions of the magnetic compass, I think these are two different and not directly comparable units. First, the ancient Mexicans at the time when they wrote their beautiful sacred books did not know our directions at all. North, east, south, and west were completely unknown terms to this ancient civilization. The core of their conception of directions was based entirely on the bearers of the heavens and heaven trees that in the four corners or sides of the newly formed earth were to hold up the sky, the daily path of the sun being the guiding principle.

Figure 6.20 shows all the examples, including page 1 of the Codex Fejérváry-Mayer, with the sun god at the beginning of the series of 4 directional deities and the death god at the end.



Figure 6.20 - The relationship between the 4 deities and the reading direction from left to right in four examples of the application of directions.

In contrast to the reading direction of the 9 deities of the night, the reading direction of the 4 deities of the directions is counterclockwise. As we have seen, the reading direction of the 4 deities associated with the 4 fixed groups of day signs of the 4 quarters usually starts with the sun god and goes from there towards the death god. On page 1 of the Codex Fejérváry-Mayer, the reading direction is then to the left or counterclockwise (see figures 6.19 and 6.20). This is in line with the reading directions of the day signs, the year bearers and the quarters.

When the 4 groups of 65 days and the 4 deities of the directions are to be read counterclockwise, the logical consequence of this is that the corresponding quarters or directions must also be read counterclockwise. This means that the first quarter at the top, the house of the sun god, is the area of the sunrise that we call the east. Right opposite must then be the area of the sunset, which we call the west. In the meantime, it has become common for the two intermediate areas to be called top or daylight and bottom or night instead of north and south. In this case, above then stands for the highest point of the sun (zenith) and below for the subterranean residence of the sun between sunset and sunrise. When reading counterclockwise, this inevitably leads to the conclusion that it is "above" in quarter 2 and "below" in quarter 4. The latter in turn fits in perfectly with the death god as ruler of the subterranean realm of the dead.

It has been shown that in most cases the sun god rules over the first group of 5 day signs and the death god over the last group of 5 day signs, with the reading direction determined by the order of the day signs from the 4 groups. The two deities between the sun god and the death god are different although the maize god is present in three cases. Now when the 20 groups of 13 days, the deity belonging to each group and the 4 quarters together are visualized, the pattern as seen in figure 6.21 is created.

6.3 Relationship time and space

The foregoing clearly shows a relationship between the 4 quarters and the 4 deities, whereby in three cases the 4 trees present here emphasize this relationship once again. The conclusion is therefore justified that the 4 sets of deities shown in figure 6.20 can be regarded as the permanent rulers of the quarters. From the examples mentioned in Figures 6.9 - 6.13 and 6.19, however, there also seems to be a relationship between the time count of the 4 groups of 5 x 13 days and the 4 quarters or sides from the old Mexican world of experience. We have already seen that there is a pattern between the 4 deities and the 4 groups of 5 day signs. This image is reinforced on page 1 of the Codex Fejérváry-Mayer by the dominant structure of the quadruple of space, with the 4 trapezoids, and of time with the 4 groups of 5 day signs.

When this apparent relationship between the 4 deities and the 4 groups of 5 day signs is visualized in its full extent, the pattern as shown in figure 6.21 is created. Up diagonally we see how the counting of the 4 groups of 5 x 13 days (20 series) proceeds and vertically the relationship between the 4 groups of 5 day signs and the 4 deities of the quarters is clearly expressed.

In figure 6.21 it can be clearly seen that each of the 4 deities in their corresponding quarter reigns for 13 days during each 52-day period. After this 260-day count is completed, the 260-day cycle starts again in the 4 quarters. Since this pattern occurs in different codices, it cannot be ruled out that this is one of the methods for making predictions, as is the case with other groups of deities within the sacred almanac of 260 days. In this case it concerns the 4 ruling deities of the 4 quarters or sides of the world.

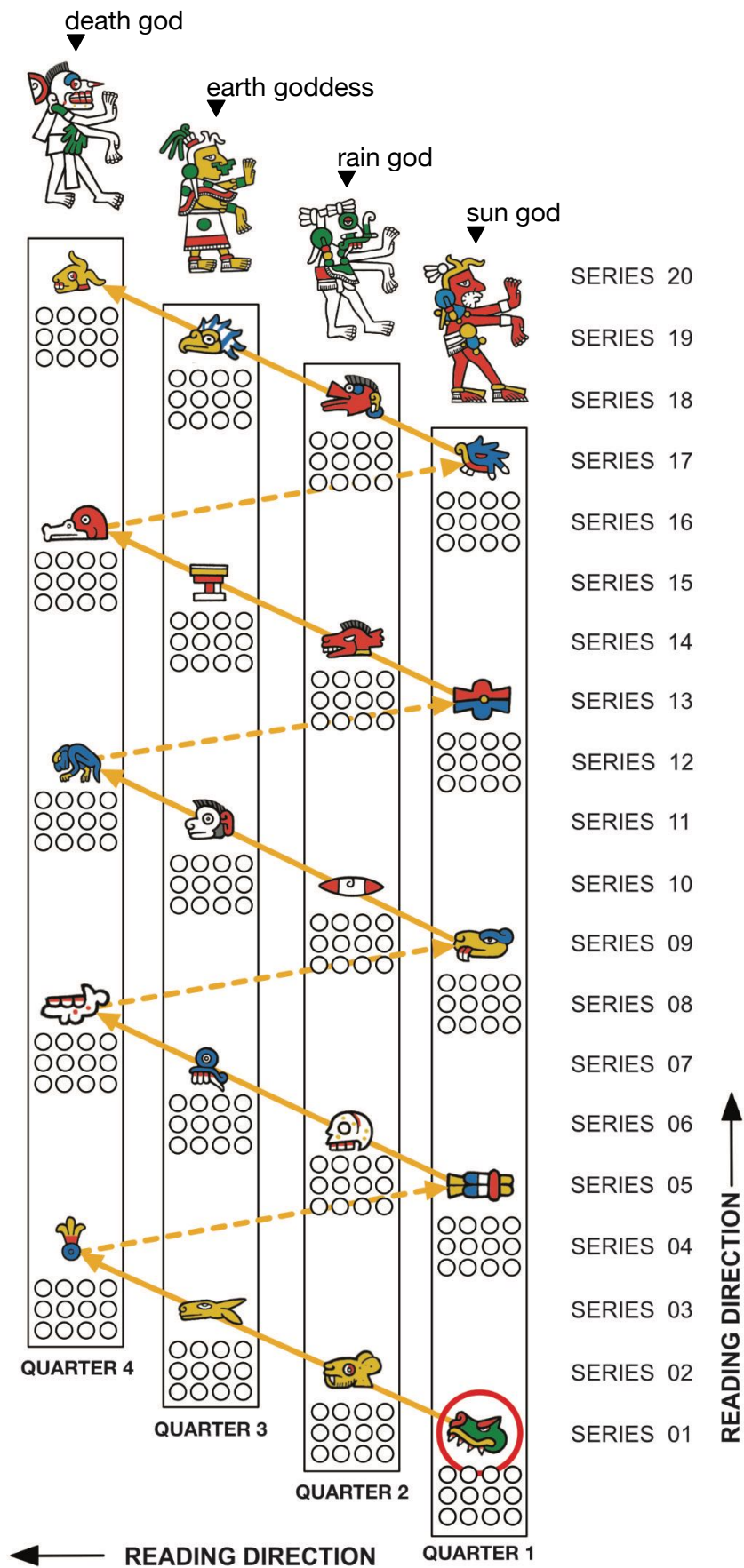


Figure 6.21 - The relationship between the 4 deities of the quarters or sides of the world and the 4 groups of 5 x 13 days.

7 The plants

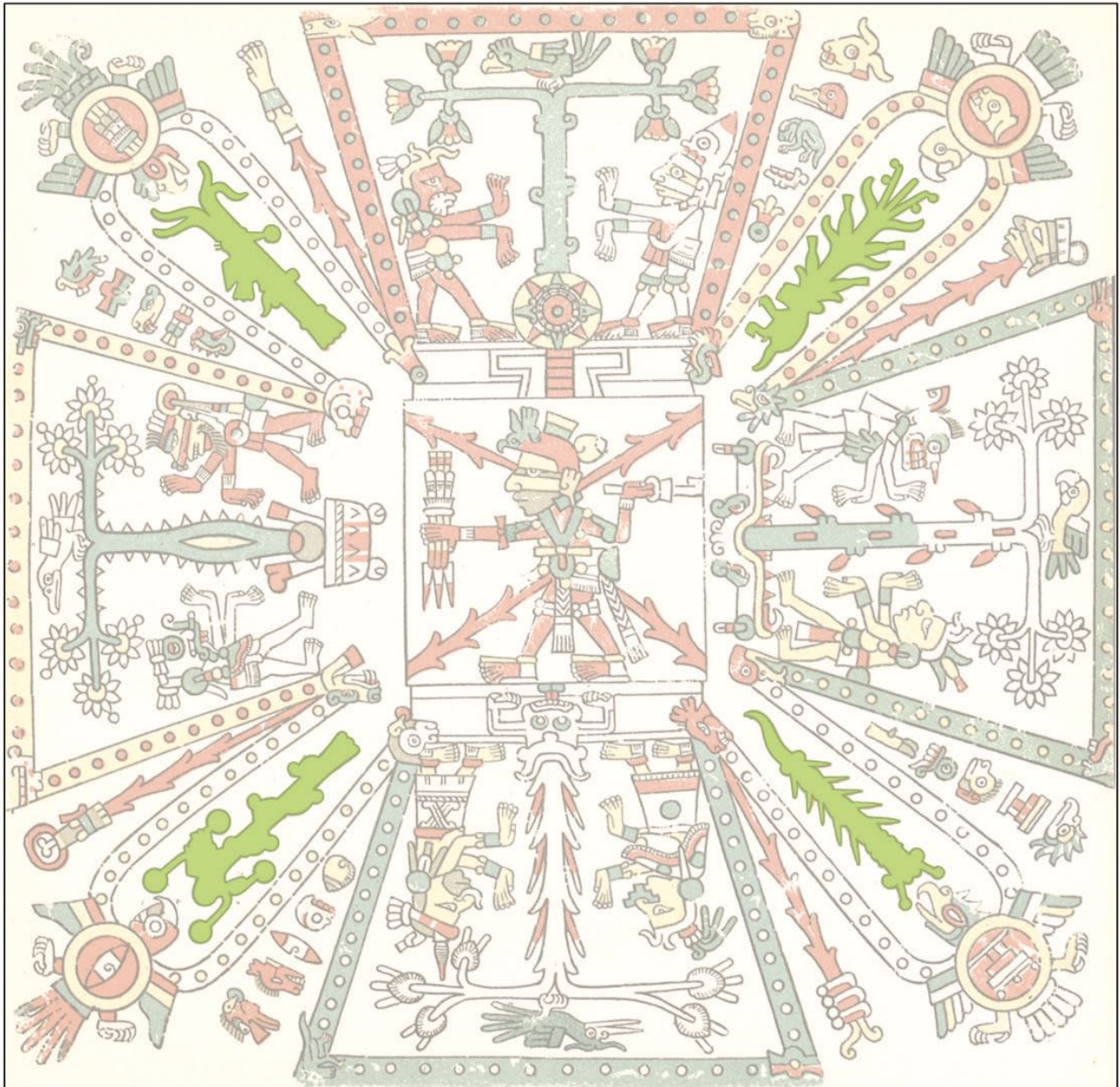


Figure 7.0 - The plants in the arches on page 1 of the Codex Fejérváry-Mayer.

An intriguing part of the scene on page 1 of the Codex Fejérváry-Mayer is the presence of the 4 plants in the arches directly below the accompanying birds with the shields and year bearers on their backs.

It is really only Eduard Seler (1901: 7, 8) who tries to explain the meaning of these 4 plants. In doing so, Seler mainly tries to connect the plants with certain directions, leaving other possibilities out of consideration. An alternative however, is a possible link between the 4 plants themselves. And that connection could be portraying the different phases and threats in the life of the main food plant, in this case the maize plant, between sowing and harvesting.

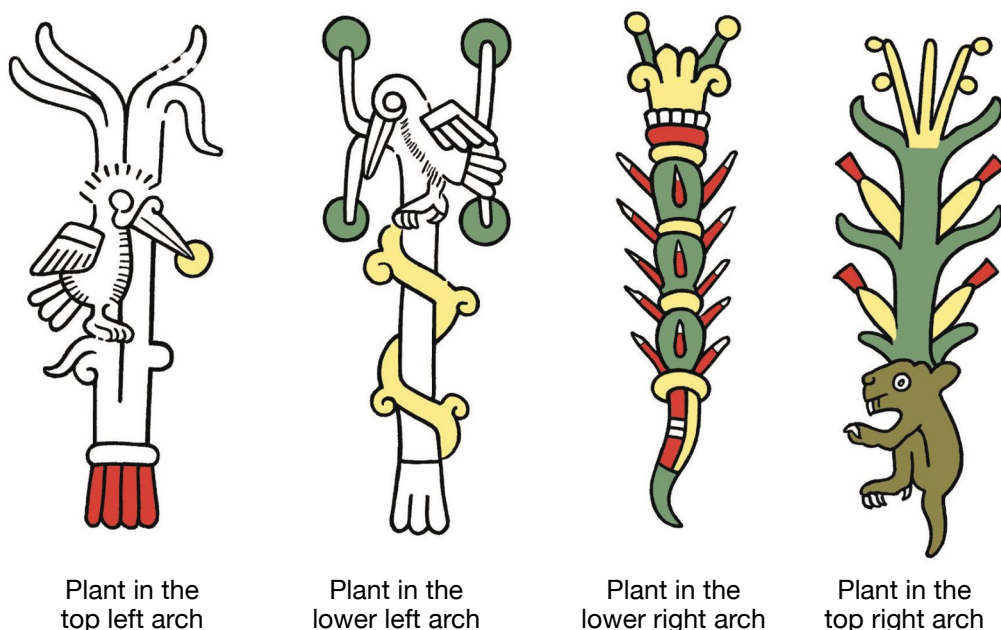


Figure 7.1 - The 4 plants in the arches in different life stages with the associated natural threats.

In a world without pesticides, the more or less cultivated plant species, such as the food plant maize, had to deal with all kinds of natural organisms that could threaten these crops during the period from sowing to harvesting. It therefore strongly appears that these threats have been visualized in the different life stages of the food plants in the four arches. And since maize was part of the staple food of the ancient Mexicans, it cannot be ruled out that this very important food source with the threats that this crop faces, has found a place in this scene on page 1 of the Codex Fejérváry-Mayer.

The 4 sides of the world or quarters within which the 4 arcs are located start in the upper left arc (see figures 6.19 and 7.0). The plant drawn here is shown as a seedling and the threat in this phase is mainly birds that eat the seeds after sowing. It should be noted that the knobby protrusions along the stem or trunk under the bird can also indicate the seedling of a tree.

In the lower left arch, the maize plant has been further developed but is now threatened by all kinds of parasitic plants such as bindweed that wrap around the maize stalks and can suffocate them. The fourfold branching at the top of the plant is a common representation of a crown in both a herbaceous plant and a tree.

The third plant in the lower right arch is a plant in full bloom that is affected by nematode infestation. A comparable plant is also present on the left side of page 5 of the Codex Vindobonensis I (see figure 4.53). The snake tail at the bottom of the plant may indicate a nematode parasitizing the roots of various plant species, including maize (e.g. *Pratylenchus penetrans*). These nematodes resemble very small glassy eels or snakes.

The fourth threat occurs in the final stage of the corn plant, the ripening of the corn kernels. The plants are severely damaged by feeding on various rodent species, including ground squirrels, rabbits and mouse species. The plant depicted here is clearly the maize plant with the cobs in the leaf axils as depicted in several other preserved ancient Mexican codices.

This ties in with the simple, practical, and uncomplicated mindset of the ancients as they portrayed it in their beautiful manuscripts.

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